



# **ata** **MANUAL**

**COMPONENT MAINTENANCE  
MANUAL WITH IPL**

**PORTABLE CYLINDER ASSEMBLIES**

**9700 SERIES AND 9800 SERIES**

H-155

**SCOTT®**

SCOTT AVIATION • A FIGGIE INTERNATIONAL COMPANY  
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Mar 1/83

9700 & 9800 SERIES  
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Dec 20/85

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

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INTRODUCTION

This manual establishes the proper maintenance procedures which shall be followed by user maintenance, overhaul and service personnel when performing any type of service on the 9700 & 9800 series Portable Cylinder Assemblies described herein.

It is the primary intent of this manual:

- a. To specify proper safety regulations to be followed during performance of service on oxygen equipment used in aviation applications.
- b. To establish proper sequence of operations to be performed on the defined equipment.
- c. To provide the user with the data necessary to properly maintain, check, test and repair the equipment.

The following WARNINGS are presented to inform the user of this manual of the requirements which shall be adhered to when performing service procedures on this equipment. Additional WARNINGS will be found in the procedural steps in the manual.

WARNINGS: ANY SERVICE OR OVERHAUL PERFORMED ON THIS APPARATUS SHALL BE DONE ONLY BY THOSE FACILITIES EXPERIENCED IN, OR BY PERSONNEL KNOWLEDGEABLE IN AVIATION OXYGEN EQUIPMENT. IF NONE ARE KNOWN, CONTACT SCOTT AVIATION OR ITS DISTRIBUTORS FOR NAMES OF AUTHORIZED SERVICE CENTERS.

WARNINGS: ALL PROCEDURES DESCRIBED IN THIS MANUAL SHALL BE PERFORMED IN AN AREA FREE OF OIL, GREASE, FLAMMABLE SOLVENTS OR OTHER COMBUSTIBLE MATERIALS. SUCH MATERIALS, AS WELL AS DUST, LINT, AND FINE METAL FILINGS ARE ALL POTENTIAL COMBUSTIBLES WHICH MIGHT, WHEN EXPOSED TO OXYGEN UNDER PRESSURE IGNITE AND RESULT IN AN EXPLOSION AND/OR FIRE.

WARNINGS: DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. SUCH MATERIALS, AS WELL AS DUST, LINT, AND FINE METAL FILINGS ARE ALL POTENTIAL COMBUSTIBLES WHICH MIGHT, WHEN EXPOSED TO OXYGEN UNDER PRESSURE, IGNITE AND RESULT IN AN EXPLOSION.

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INTRO-1  
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**Verification**

**Section**

**Date**

**Testing and Fault Isolation  
Disassembly  
Assembly**

**October 14, 1982  
October 14, 1982  
October 14, 1982**

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**INTRO-2**  
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PORTABLE OXYGEN BREATHING EQUIPMENT

DESCRIPTION AND OPERATION

1. General

- A. This manual provides overhaul instructions with illustrated parts list for the 9700 series and 9800 series Portable Cylinder Assemblies.
- B. The instructions in this manual apply to all assemblies unless specific reference is made to a particular part number.
- C. Each of the various assemblies (see figure 1) consists of an oxygen cylinder (1), pressure regulator (2), "ON-OFF" valve (3), relief valve (4), safety outlet assembly (5), charging valve (6), mask outlet assembly (7), and gauge (8). In addition, the 9800 series contains a demand type oxygen regulator (9). The part number of a particular assembly is determined by the part numbers of the various components that make up the assembly.

2. Leading Particulars. Refer to figures 2 and 3 for leading particulars.

3. Purpose of Equipment

- A. This equipment provides a portable oxygen breathing source. The 9700 series contains outlet assemblies used to adapt a rebreather type mask. The rebreather type mask provides the user with supplementary oxygen for high altitude breathing and/or therapeutic use. The 9800 series provides oxygen for the above uses and, in addition, provides a walk-around oxygen supply for a demand type mask suitable for smoke and fume protection.

4. Typical Installation

- A. All assemblies are completely portable and have a carrying strap. They should be stored in a convenient and accessible location.

5. Overall Operation

- A. Oxygen is supplied from the high pressure cylinder to the pressure regulator. The "ON-OFF" valve, safety outlet assembly and pressure gauge are exposed to cylinder pressure. The "ON-OFF" valve controls the flow of oxygen from the cylinder to

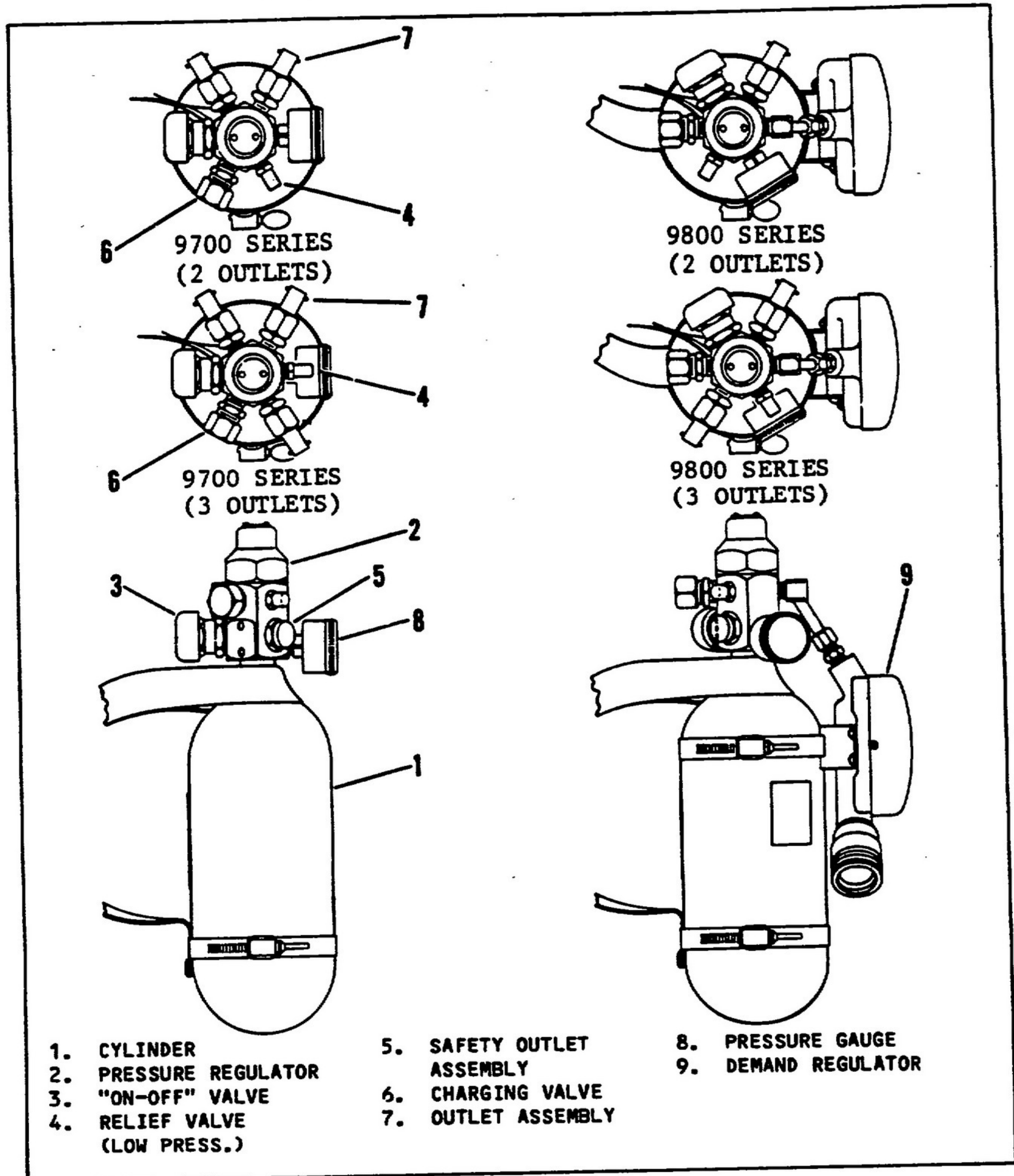
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**500II**

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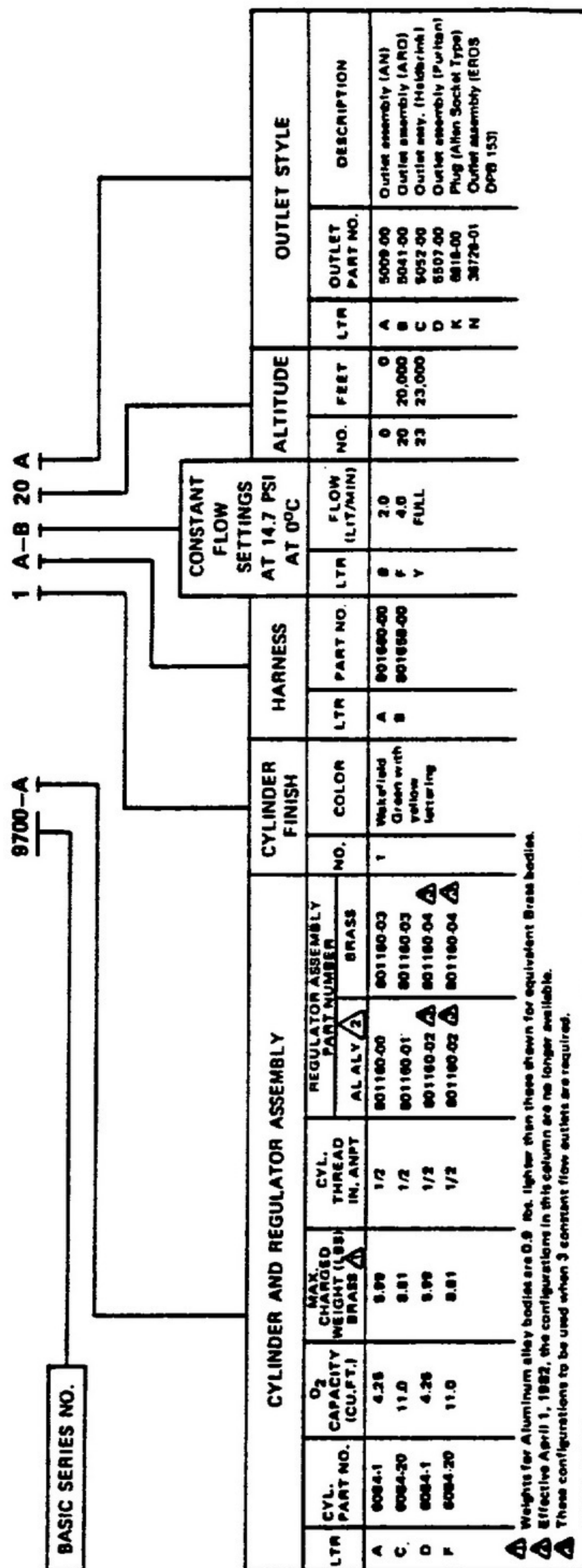
**Portable Cylinder Assemblies  
Figure 1**

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9000

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Leading Particulars of 9700 Series  
Figure 2

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9000

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RESPIRATOR REGULATOR		CYLINDER AND REGULATOR ASSY										CYLINDER FINISH		HARNESS		CONSTANT FLOW SETTINGS AT 14.7 PSI AT 60°C			ALTITUDE		OUTLET STYLE											
		REGULATOR PART NO.	DESCRIPTION	LTR	CYLINDER PART NO.	O <sub>2</sub> CAPACITY (CU. FT.)	MAX. CHARGED WEIGHT (LBS.)	CYLINDER THREAD	REGULATOR ASSEMBLY		NO												COLOR	LTR	PART NO.	LTR	FLOW (LIT/MIN)	NO.	FEET	LTR	OUTLET PART NO.	DESCRIPTION
									AL ALY	BRASS																						
1	981242-01	Includes 9802 adapter for 8215 hose coupling	C	9804-39 9804-39	11.0 11.0	0.51 0.51	1/2 1/2	981100-01 981100-02	981100-03 981100-04	1 1	Black Green with yellow lettering	A	981000-00	B	B	0	0	0	A	Outlet assembly (ARI)												
2	981242-02	Includes 9809 adapter for A4 type tank discharge	D											C	C	20,000	20,000	20,000	B	Outlet assembly (ARI)												
														D	D	20,000	20,000	20,000	C	Outlet assembly (ARI)												
														E	E	20,000	20,000	20,000	D	Outlet assembly (ARI)												
														F	F	20,000	20,000	20,000	E	Outlet assembly (ARI)												
														G	G	20,000	20,000	20,000	F	Outlet assembly (ARI)												
														H	H	20,000	20,000	20,000	G	Outlet assembly (ARI)												
														I	I	20,000	20,000	20,000	H	Outlet assembly (ARI)												
														J	J	20,000	20,000	20,000	I	Outlet assembly (ARI)												
														K	K	20,000	20,000	20,000	J	Outlet assembly (ARI)												
														L	L	20,000	20,000	20,000	K	Outlet assembly (ARI)												
														M	M	20,000	20,000	20,000	L	Outlet assembly (ARI)												
														N	N	20,000	20,000	20,000	M	Outlet assembly (ARI)												
														O	O	20,000	20,000	20,000	N	Outlet assembly (ARI)												
														P	P	20,000	20,000	20,000	O	Outlet assembly (ARI)												
														Q	Q	20,000	20,000	20,000	P	Outlet assembly (ARI)												
														R	R	20,000	20,000	20,000	Q	Outlet assembly (ARI)												
														S	S	20,000	20,000	20,000	R	Outlet assembly (ARI)												
														T	T	20,000	20,000	20,000	S	Outlet assembly (ARI)												
														U	U	20,000	20,000	20,000	T	Outlet assembly (ARI)												
														V	V	20,000	20,000	20,000	U	Outlet assembly (ARI)												
														W	W	20,000	20,000	20,000	V	Outlet assembly (ARI)												
														X	X	20,000	20,000	20,000	W	Outlet assembly (ARI)												
														Y	Y	20,000	20,000	20,000	X	Outlet assembly (ARI)												
														Z	Z	20,000	20,000	20,000	Y	Outlet assembly (ARI)												
																					DPB 1831	Outlet assembly (ARI)										
																					Prod (Ampex 504-98)	Prod (Ampex 504-98)										

9800-1 A

1 A-B 20 A

BASIC SERIES NO.

Weights for Aluminum alloy bodies are 9 lbs lighter than those shown for equivalent brass bodies.  
Effective April 1, 1962, the configurations shown in this bulletin are no longer available.  
These configurations are to be used when 3 quantities from outlets are required.

Leading Particulars of 9800 Series  
Figure 3

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the pressure reducing mechanism in the regulator body. It also controls the flow of oxygen from the charging valve to the cylinder. When the valve is in the "OFF" position, oxygen cannot flow through the regulator. The safety outlet assembly contains a frangible disc. In the event of hazardous pressure rise, the frangible disc ruptures and allows cylinder oxygen to be vented to atmosphere.

- B. When the "ON-OFF" valve is open, oxygen flows into the upper portion of the regulator body which contains the pressure reducing mechanism. It reduces the cylinder oxygen pressure to a lower pressure which is suitable to supply a rebreather type mask, through the outlet assemblies, or a demand type regulator.
- C. The regulator contains a valve assembly which enables the cylinder to be filled (recharged) with high pressure oxygen. A relief valve is located in the low pressure portion of the regulator to protect the low pressure section from a hazardous pressure buildup.



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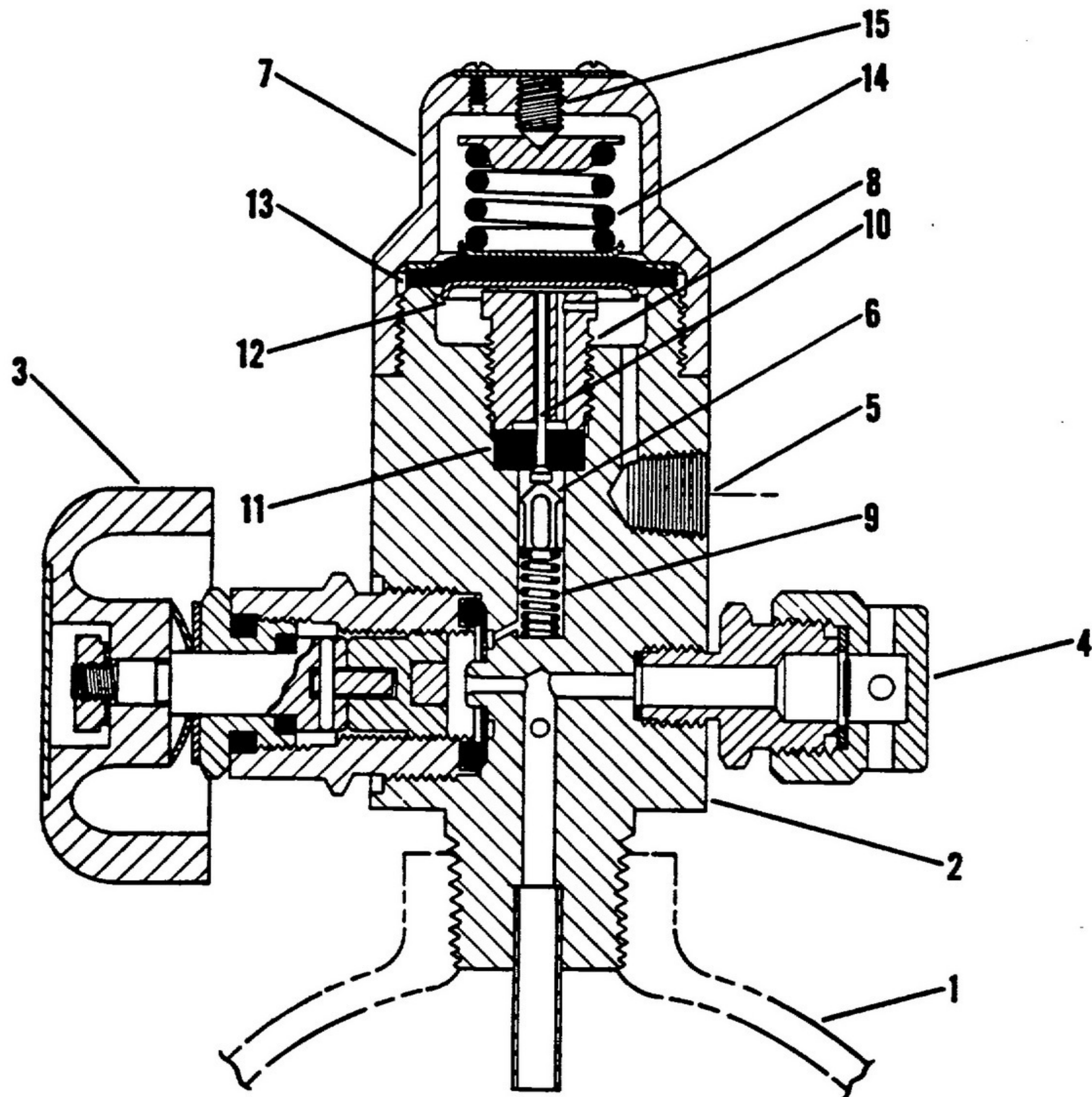
**6. Detailed Operation**

- A. "ON-OFF" Valve.** "ON-OFF" valve (3, figure 4) is a rotary type valve installed in the high pressure portion of the pressure regulator. Rotation of the valve knob in a clockwise direction causes the valve head assembly to seat against a port in the regulator body, thus preventing flow to the upper portion of the regulator. Rotation of the knob in a counterclockwise direction opens the port and allows oxygen to enter the pressure regulating mechanism.
- B. Safety Outlet Assembly.** Safety outlet assembly (4, figure 4) is installed in the high pressure portion of the regulator. The center of the outlet contains a frangible disc. In the event of hazardous cylinder pressure rise, the frangible disc ruptures and allows the oxygen to vent to atmosphere.
- C. Pressure Gauge.** Pressure gauge (8, figure 1) is installed in the high pressure portion of the regulator. It indicates the pressure of the oxygen in the cylinder, thus giving an indication of the amount of available oxygen.
- D. Pressure regulator.** Pressure regulator (see figure 4) reduces high pressure oxygen to a lower pressure. When the "ON-OFF" valve is open, oxygen flows to the top portion of the regulator. This portion of the regulator contains the pressure reducing mechanism. It performs in the following manner. High pressure oxygen and spring (9) act upward on thrust pin (10). These forces act to seat the pin against valve seat (11) to prevent flow through the regulator. The other end of the pin rests against thrust plate (12) and diaphragm (13). One side of the diaphragm is acted upon by spring (14) and the other side is acted upon by outlet pressure. The spring acts downward and tends to move thrust pin (10) away from seat (11). Outlet oxygen pressure acts upward on the diaphragm to counter the spring force. Oxygen will flow through the regulator as long as the force of spring (14) exceeds the outlet pressure acting on diaphragm (14) and the forces tending to move thrust pin (10) against its seat. However, as increasing outlet pressure counter-balances spring (14), thrust pin (10) is forced toward its seat by inlet oxygen pressure and spring (9) until a condition of equilibrium is established and regulator pressure is maintained. Spring (14) is preset to maintain an outlet pressure of approximately 55 psi.



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- |                             |                     |                     |
|-----------------------------|---------------------|---------------------|
| 1. CYLINDER                 | 6. THRUST PIN GUIDE | 11. SEAT            |
| 2. REGULATOR                | 7. CASE             | 12. THRUST PLATE    |
| 3. "ON-OFF" VALVE           | 8. SEAT HOLDER      | 13. DIAPHRAGM       |
| 4. SAFETY OUTLET ASSEMBLY   | 9. SPRING           | 14. SPRING          |
| 5. RELIEF VALVE OUTLET PORT | 10. THRUST PIN      | 15. ADJUSTING SCREW |

Regulator Cross Section  
Figure 4

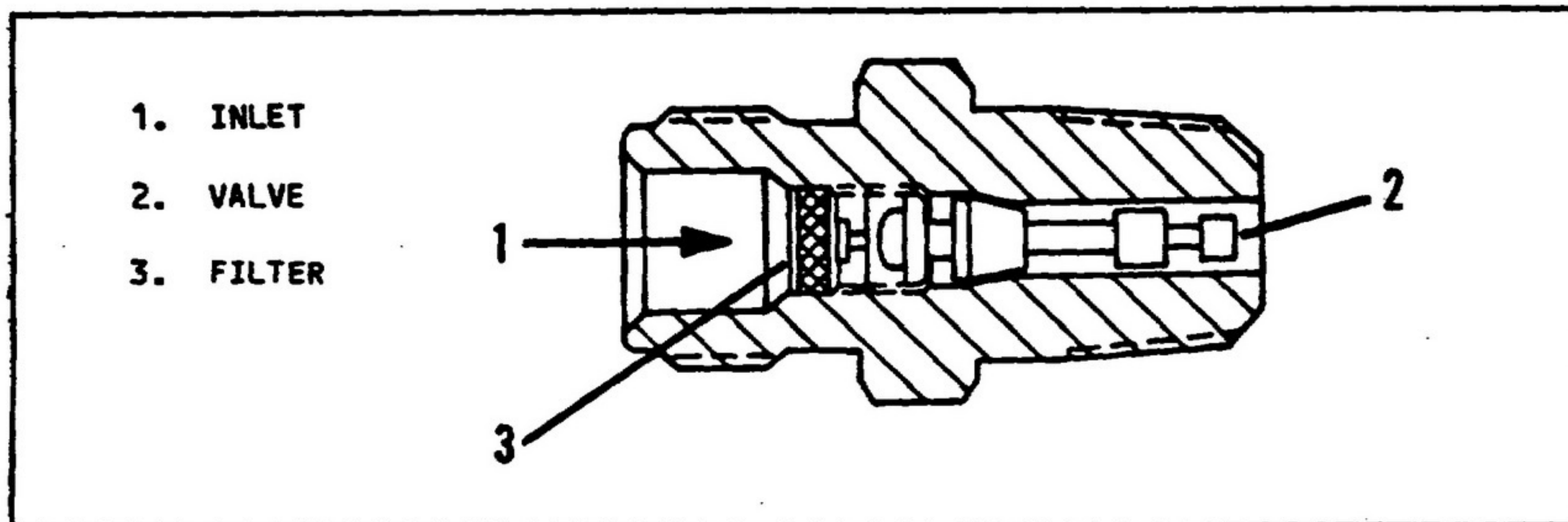
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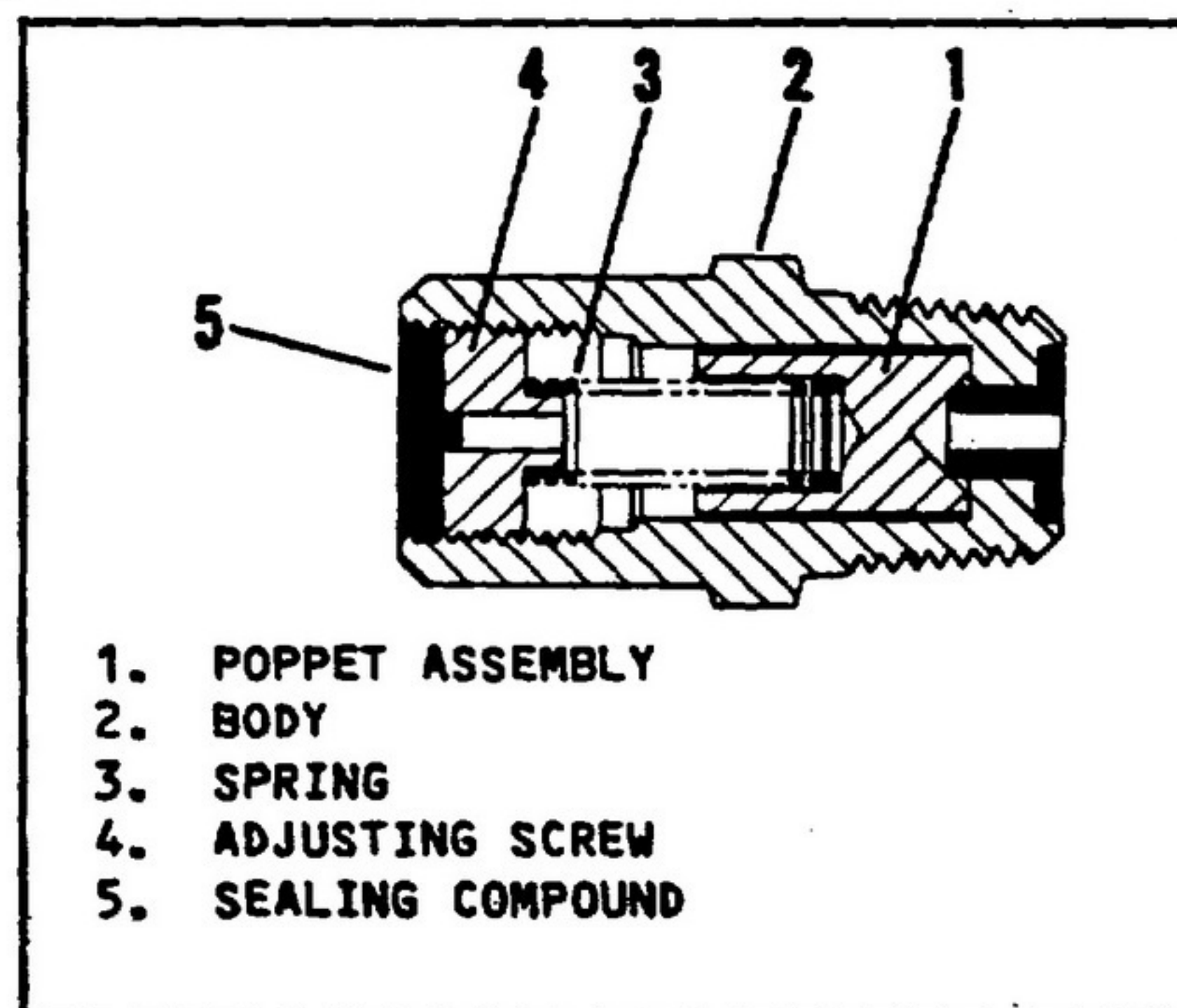
## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

- E. **Charging Valve Assembly.** Charging valve assembly (see figure 5) is used to fill the oxygen cylinder with high pressure oxygen. Since it is located in the upper portion of the regulator, the "ON-OFF" valve must be open to allow oxygen to flow into the cylinder. High pressure oxygen applied at charging valve inlet (1) forces valve (2) away from its seat, and oxygen flows through porting into the high pressure cylinder. The valve seats against its housing to prevent flow out of the cylinder. A cap installed on the charging valve prevents seepage past valve (2) and dirt from entering.



Charging Valve Assembly  
Figure 5

- F. **Relief Valve.** Relief valve (see figure 6) is installed in the low pressure portion of the regulator. The relief valve serves as a safety device to prevent excessive outlet pressure. In the event of excessive outlet pressure, poppet assembly (1) is forced away from its seat in body (2), and oxygen is vented through the openings in the body. When pressure reduces to an acceptable value, spring (3) forces the poppet against its seat, thus stopping the flow of oxygen.



Relief Valve  
Figure 6

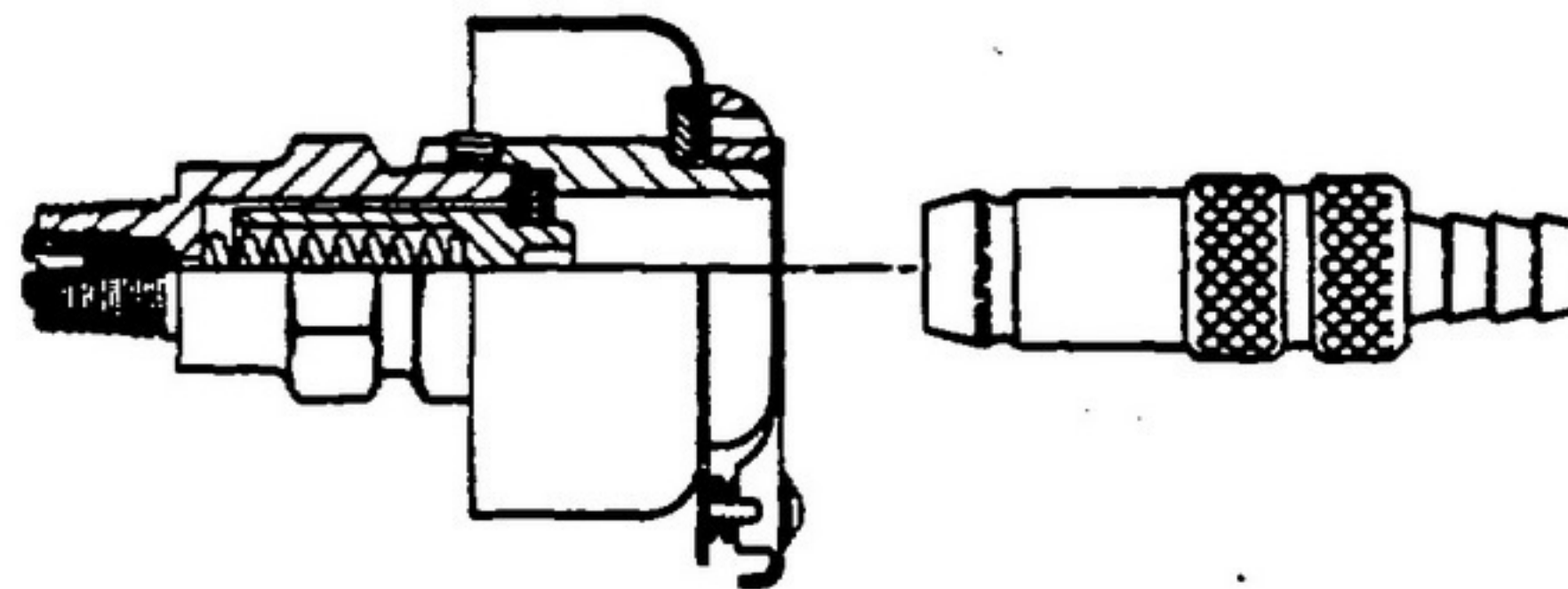


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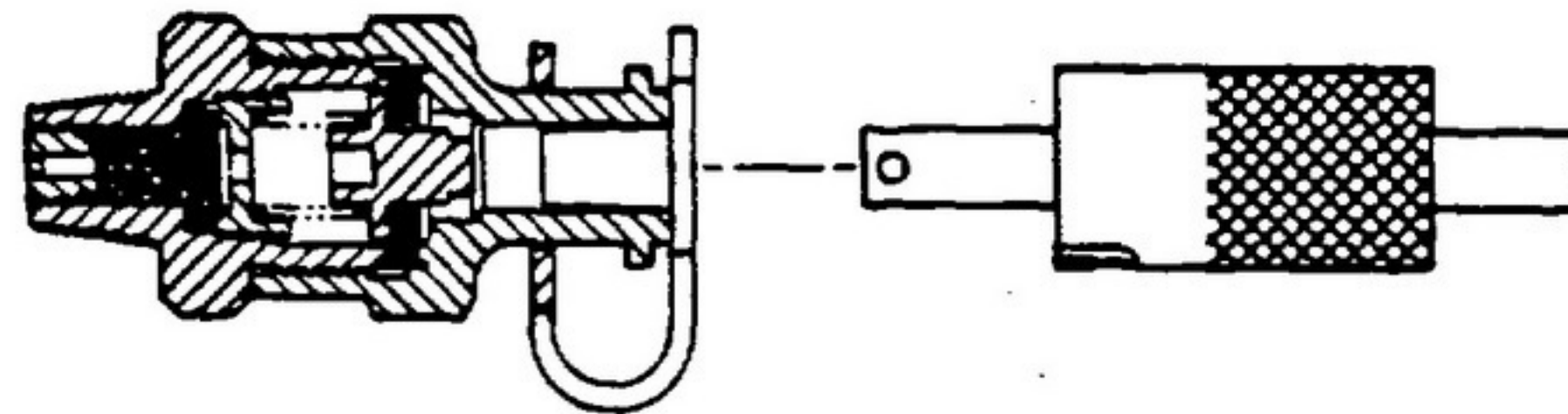
- G. Outlet Assemblies.** Six different outlet assemblies are available. The type used on a particular installation is dependent on flow requirements and the type of mask insert to be used. Each outlet is similar in that it contains an internal check valve and an oxygen hose plug-in adapter. Three of the outlets contain glass wool for metering flow. When a plug-in is inserted in an outlet, it opens the check valve and allows flow into a mask.
- H.** Two outlet assemblies are provided on most 9700 series assemblies although one and three outlets may also be found. The 9800 series may contain one outlet assembly, two outlet assemblies or no outlet assembly. The six different outlet assemblies are illustrated in figure 7.
- J. Demand Regulator.** (See figure 8.) The 9800 series contains a demand type regulator. The inlet of the regulator is connected to one of the pressure reducer outlet openings. The demand regulator allows oxygen to flow, on demand, to a demand type mask. Inhalation in the demand mask withdraws oxygen from the body of the demand regulator. This causes a pressure drop in the regulator case which allows atmospheric pressure, acting on the outside of diaphragm (1), to force the diaphragm inward against the stem of valve (2). This action opens the valve and causes oxygen to enter the regulator body, thus raising the pressure in the regulator body. The increased pressure moves the diaphragm away from the valve stem, thus stopping the flow of oxygen. The regulator functions in this manner to supply oxygen on demand.

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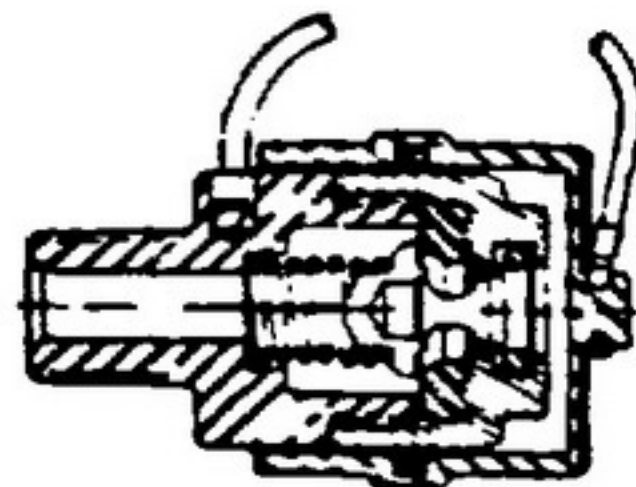
**9700 & 9800 SERIES  
COMPONENT MAINTENANCE MANUAL WITH IPL**



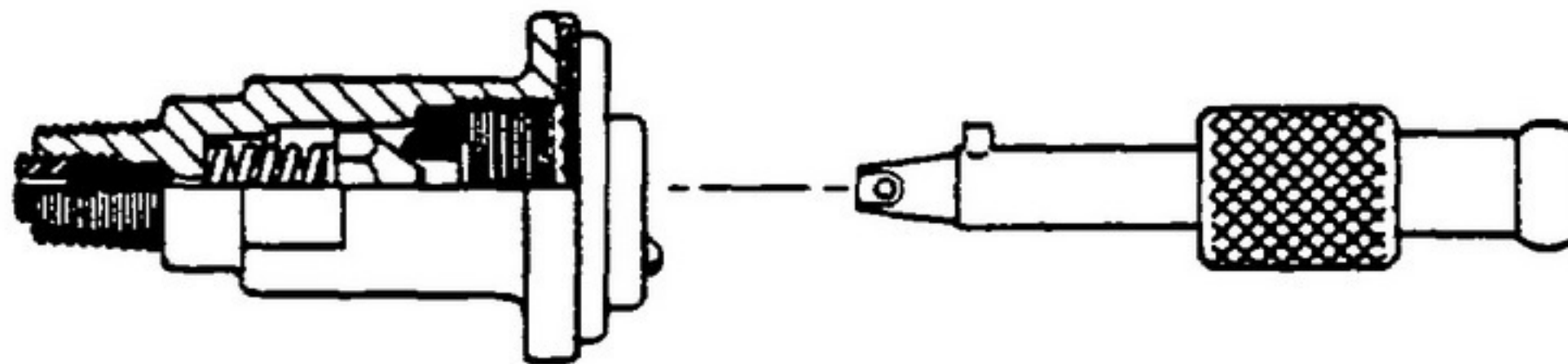
**5041 OUTLET ASSEMBLY  
SHOWING ARO TYPE PLUG-IN**



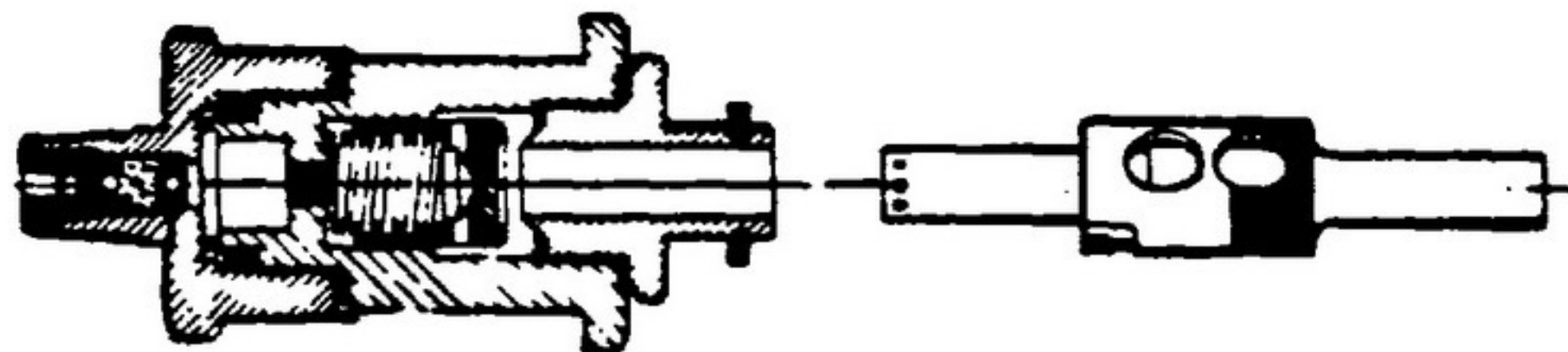
**AN TYPE PLUG-IN WITH  
5009 OUTLET ASSEMBLY**



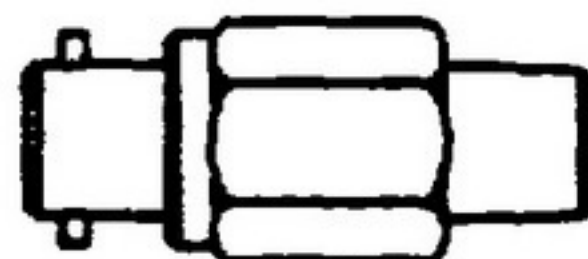
**10003566 PURITAN TYPE OUTLET**



**5507 OUTLET ASSEMBLY WITH  
PURITAN PLUG-IN**



**5052 OUTLET ASSEMBLY  
SHOWING OHIO-CHEMICAL TYPE  
PLUG-IN**



**36728-01 EROS OUTLET  
ASSEMBLY**

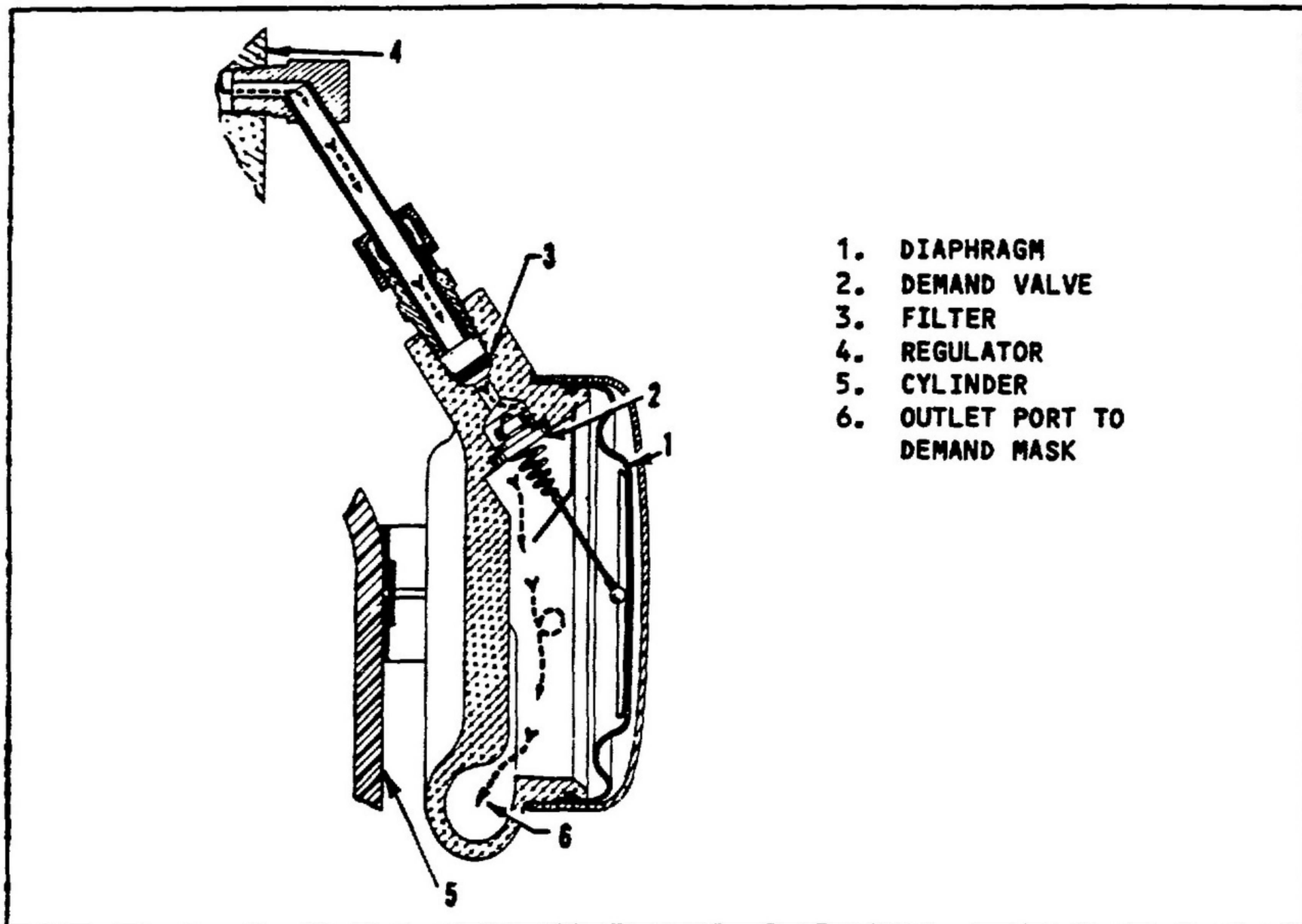
**Available Outlet Assemblies with Plug-Ins  
Figure 7**

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**Demand Regulator  
Figure 8**

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

### TESTING AND FAULT ISOLATION

#### 1. Testing

**WARNING:** IN ALL PROCEDURES LISTED BELOW, OXYGEN IS SPECIFIED AS THE TEST GAS. WATER PUMPED NITROGEN OR OIL-FREE AIR MAY BE SUBSTITUTED, BUT RESULTS MUST BE CONVERTED PRIOR TO BEING COMPARED WITH THE RESULTS SPECIFIED FOR OXYGEN. DO NOT, UNDER ANY CIRCUMSTANCES, USE OIL PUMPED GAS AS THIS WILL CAUSE CONTAMINATION OF THE REGULATOR AND TEST EQUIPMENT. OIL, EVEN IN MINUTE QUANTITY, COMING IN CONTACT WITH OXYGEN MAY CAUSE AN EXPLOSION OR FIRE.

A. Using the material listed in Table 101, perform the testing procedures outlined in the following paragraphs.

**NOTE:** Equivalent materials may be used.

MATERIAL	DESCRIPTION	MANUFACTURER*	REFER TO TESTING PARAGRAPH
Oxygen	MIL-O-27210, Type I	V07098	ALL
Leak Test Solution	Snoop MIL-L-25567	V18034	1.D.(2), 1.F.(12), 1.G.(3), 1.H.(5)

\*Refer to Illustrated Parts List, paragraph 1.E, for Vendor's Code

List of Consumable Materials for Testing  
Table 101

- B. All tests must be conducted with a cylinder pressure of 1800 psi. Fully charge the cylinder to 1800 psi in accordance with the following instructions.
- (1) Check the pressure shown on the pressure gauge. If it indicates less than 1800 psi, the cylinder should be charged.
  - (2) Use an oxygen charging system as shown in figure 101 (or equivalent).
  - (3) Open the "ON-OFF" valve fully, and remove the cap from the charging valve.
  - (4) Connect the supply cylinder set-up (see figure 101) to the charging valve.

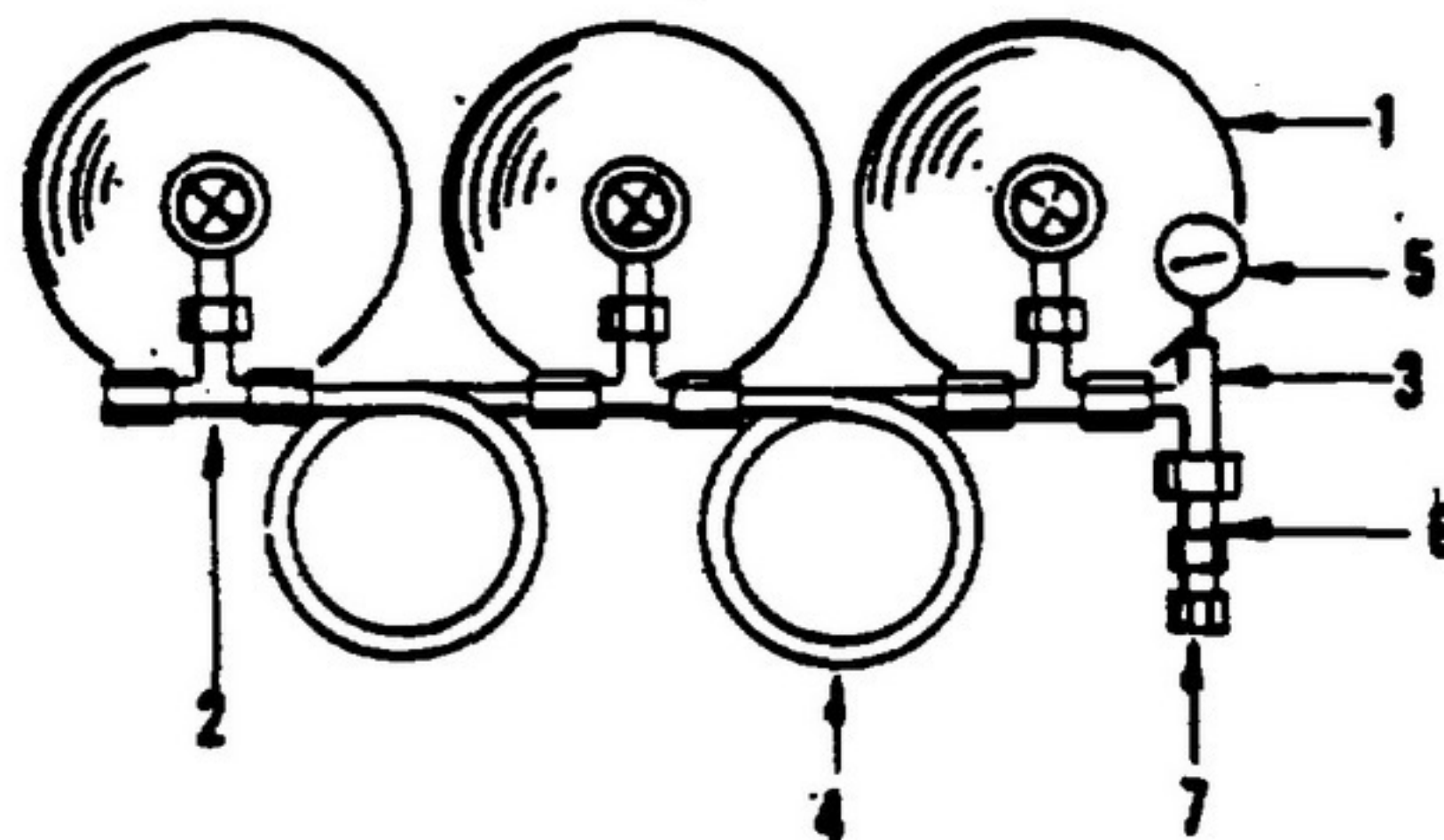
# 900II

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- (5) Slowly open the supply cylinder valve, charging at a rate not to exceed 300 psi per minute. Compare the indications of the gauge on the unit and the gauge of the supply cylinders. When the pressure in the breathing oxygen cylinder equals the supply cylinder pressure, close the supply cylinder valve. Allow the cylinder to cool, and recheck the pressure indicated on the pressure gauge. The cylinder should contain 1800 psi at not over 70°F.

### C. Relief Valve

- (1) Connect the relief valve to a suitable oxygen pressure source.
- (2) Apply 90 psi to the relief valve. Valve must hold 90 psi.
- (3) Increase pressure to 135 psi. Relief valve must flow fully.
- (4) Reduce pressure to 90 psi. Valve must reseal.



1. SUPPLY CYLINDERS
2. TEE, P/N 6258
3. TEE, P/N 6145
4. PIGTAIL, P/N 5082
5. OXYGEN GAUGE 0-2000 PSI

6. REFILL COUPLING, P/N 5020-1
7. CONNECT CHARGING VALVE OF PORTABLE BREATHING UNIT TO REFILL COUPLING

Setup for Recharging Portable Cylinder Assemblies  
Figure 101

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**D. Outlet Assemblies**

- (1) Connect the outlet assembly to an oxygen pressure source.
- (2) Apply  $55 \pm 2$  psi to the outlet assembly and apply leak test solution to all body joints and the outlet port. Bubbles indicate leaks which must be corrected.
- (3) Insert the appropriate mask plug-in into the outlet. The plug-in must be securely held and allow oxygen to flow.
- (4) Shut off the oxygen supply to the outlet assembly. Connect a suitable flow meter to the mask plug-in. Apply an inlet pressure of  $55 \pm 2$  psi. The flow for a particular outlet is determined by the coding of the 9700 or 9800 part numbers (see figures 2 and 3) of which the outlet is a part. This code is also stamped on the hexagon base of each outlet. When flow settings differ on outlets of one 9700 or 9800 unit, "LO" flow and "HI" flow are indicated on the appropriate outlet assemblies. At ground level, outlet flows must agree with the values listed in figure 102 for the particular flow and altitude markings. If flows do not agree, adjust the outlet assembly in accordance with the following instructions.

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REQUIRED FLOW SETTING AT SEA LEVEL LPM-NTPD (760 mm Hg & 20°C) TOLERANCE = $\pm$ 5%		
FLOW RATE AT ALTITUDE LPM-STPD (760 mm Hg & 0°C)	ALTITUDE - FEET	
	20,000	23,000
2.0	2.80	2.82
3.0	4.08	4.12
4.0	5.21	5.27

Outlet Assembly Setting  
Figure 102

- (a) Remove the oxygen supply from the outlet assembly.
- (b) Flow adjustment is accomplished by compressing the cord. This is done by threading the adjusting screw into the outlet. This action serves to decrease flow. Adjust and test outlets until desired flow is obtained.

**NOTE:** Since the cord will not expand once compressed, removal of adjusting screw will not alter flow. Adjustment should be done with care. The only method for increasing flow is to remove the compressed cord and repack the outlet assembly.

### E. 801242 Series Demand Regulator Test. (See figure 103.)

- (1) Connect an assembled regulator to the test setup shown in figure 103.
- (2) With inlet pressure of 35 psi, adjust flow control valve for a minimum flow of 20 liters per minute. Resistance, indicated on draft gauge, shall not be greater than 0.7 inches of water.

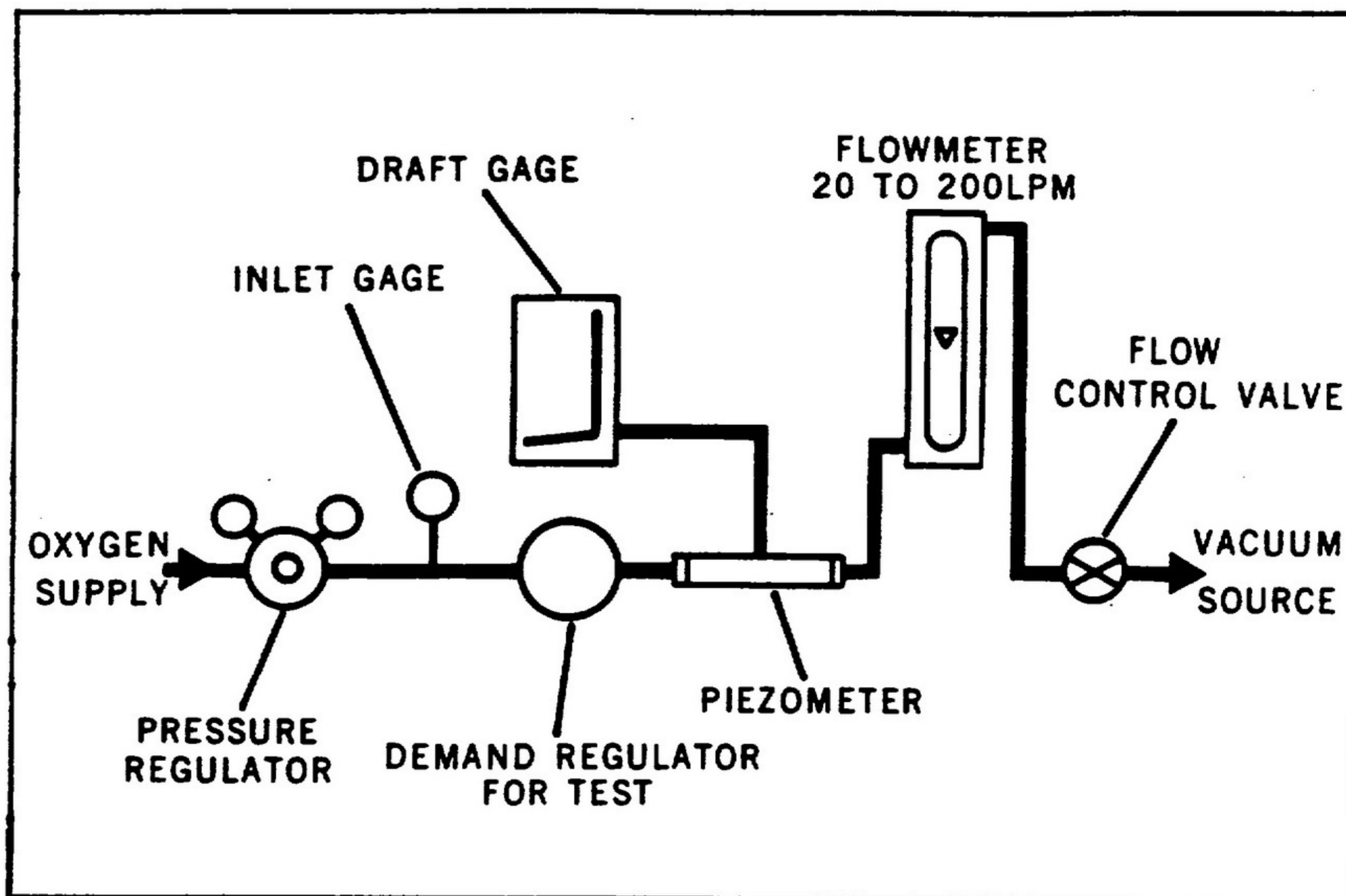
**NOTE:** The regulated inlet pressure shall be maintained during test.

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Test Setup for Demand Regulator P/N 6379  
Figure 103

### F. 801160 Series Regulator Adjustment and Test

**NOTE:** Before testing the regulator assembly, make sure it is completely assembled with the specified components.

- (1) Remove relief valve from regulator and install a 0-100 psig pressure gauge in its place.
- (2) Turn the regulator on-off valve to the "ON" position then turn the valve to the "OFF" position.
- (3) Vent the regulated pressure section of the regulator by engaging a mask plug-in into an outlet and letting the oxygen vent. If no constant flow outlet is used on the regulator, attach a threaded adapter and needle valve to one of the plugged outlet ports. Vent through the needle valve.
- (4) Repeat steps (2) and (3) a total of ten times.



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- (5) Adjust the regulator outlet pressure by turning setscrew (34, IPL figure 7) as necessary to obtain  $55 \pm 2$  psi pressure as indicated on the gauge attached to the regulator relief valve port. Regulator must be flowing through an outlet while the pressure is being adjusted. If no outlet is being used, use an adapter and needle valve (cleaned for oxygen service) and flow approximately 4 LPM.
  - (6) Connect a 10 liter per minute flowmeter to a suitable mask plug-in and turn the on-off valve to the "ON" position, then connect the mask plug-in to an outlet. Flow, as indicated on the attached flowmeter, must be in accordance with figure 102.
  - (7) Remove the mask plug-in and check the regulator outlet pressure. Lock-up pressure shall not exceed 75 psi.
  - (8) Repeat steps (5) through (7) for each additional outlet assembly.
  - (9) Turn the regulator on-off valve to the "OFF" position and replace the 0-100 psi pressure gauge with the regulator relief valve.
  - (10) Repeat steps (1) through (9) a total of three times at 24 hour intervals. Then torque the relief valve per Table 801.
- NOTE:** The 24-hour time interval is recommended to permit component parts to settle.
- (11) Turn the regulator on-off valve to the "ON" position.
  - (12) Use leak test solution to leak test all regulator joints and outlet ports. Manipulate mask plug-in to simulate use during test. No leakage is allowed. If outlets, gauge or relief valve joints leak, retorque until leak is eliminated. Maximum torque must not exceed values listed in Table 801. If charging valve assembly leaks, retorque until leak is eliminated. Maximum torque must not exceed value listed in Table 801.

**NOTE:** Always relieve pressure when retorquing fittings.

### G. Valve Torque Test

- (1) Using torque wrench, turn on-off valve approximately one full turn open. Required torque shall not exceed 16 lbf.in. (1.80 N.m).
- (2) Using torque wrench, close valve with 16 lbf.in. (1.80 N.m) torque maximum.

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- (3) Test for leakage through valve by applying leak test solution to the outlet of a mating connector inserted into one of the regulator outlets. After relieving of residual pressure, there shall be no leakage through test connector.

H. Final Test of Complete Unit

- (1) Turn the regulator on-off valve to the "ON" position.
- (2) Immerse the cylinder regulator in a suitable corrosion inhibiting leak test solution. Check for leakage at the On-Off valve stem while turning the valve to "OFF" position and from fully "OFF" back to "ON". No leakage is allowed.
- (3) Store the unit for seventy-two hours with the regulator On-Off valve in the "ON" position.
- (4) Repeat step (2).
- (5) Insert a mask connector in each constant flow outlet. Using leak test solution, check for leakage between connector and outlet. No leakage is allowed.

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### 2. Fault Isolation

A. See figure 104 for a chart containing troubles, probable causes and remedies.

TROUBLE	PROBABLE CAUSE	REMEDY
Relief valve (31, IPL figure 7) does not relieve at proper pressure	Worn parts, contamination	Replace relief valve
Outlet assembly (29, IPL figure 1) does not allow proper flow	Out of adjustment	Readjust per Testing, paragraph C.(4)
	Contamination on glass cord	Clean outlet and replace cord
Outlet assembly (29) does not hold plug-in securely	Worn parts	Inspect parts; replace as necessary
	Parts not properly assembled	Disassemble parts and reassemble properly per Assembly, paragraph A.
Demand regulator (20) fails to meet draft and flow requirements	Demand valve assembly (14, IPL figure 2) sticking	Replace demand valve assembly
	Diaphragm (10) punctured	Install new diaphragm per Assembly, paragraph C.(5)
	Diaphragm (10) not properly assembled to case (22)	Reinstall diaphragm per Assembly, paragraph C.(5)
Demand regulator (20) leaks	Contamination on gasket (18)	Disassemble demand valve assembly and clean
	Defective demand valve assembly (14) or gasket (18)	Replace valve assembly (14, IPL figure 2) and/or gasket (18)

Trouble Shooting  
Figure 104 (Sheet 1 of 3)

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TROUBLE	PROBABLE CAUSE	REMEDY
Regulator assembly (39, IPL figure 1) fails to provide proper outlet pressure	Regulator assembly not adjusted properly	Readjust regulator per Testing paragraph E.
	Defective seat (43, IPL figure 6) or pin (44)	Inspect seat and pin per Assembly, paragraph B.(15)
	Diaphragm (40) defective	Replace diaphragm
	Diaphragm (40) not sealed to body	Reassemble diaphragm per Assembly, paragraph B.(17)
Leakage at joint between outlet assembly (29, IPL figure 1) relief valve (31, IPL figure 7) or gauge (30) and body (50)	Units not assembled to body using sealing tape	Reassemble to body per Assembly, paragraph B.(2), B.(5) or B.(6)
	Units not tight enough in body	Retorque per Table 801
Leakage at joint between charging valve assembly (21) body and body (50)	Unit not assembled to body using sealing tape	Reassemble to body per Assembly, paragraph B. (3)
	Unit not tight enough in body	Retorque per Table 801
Leakage at joint between safety plug (28) and body (50)	Unit not tight enough in body	Retorque per Table 801
	Defective disc (26) or gasket (27)	Inspect periphery of gasket and disc for smoothness. Replace if necessary and torque per Table 801
Leakage at joint between bushing (17, IPL figure 7) and body (50)	Unit not tight enough in body	Tighten unit on body
	Defective packing (16, IPL figure 7)	Replace packing

Trouble Shooting  
Figure 104 (Sheet 2 of 3)

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TROUBLE	PROBABLE CAUSE	REMEDY
Leakage past core of charging valve assembly (21)	Loose or defective core	Replace charging valve assembly (21)
Leakage between bushing (17) and packing nut (11)	Loose packing nut (11)	Tighten nut
	Defective packing (12)	Replace packing per Assembly, paragraph B.(11)
Leakage between stem assembly (13) and packing nut (11)	Faulty seat (14)	Replace seat
On-off valve fails to shut off oxygen in "OFF" position	Faulty head assembly (15)	Replace head assembly per Assembly, paragraph B.(9)

Trouble Shooting  
Figure 104 (Sheet 3 of 3)

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DISASSEMBLY

**WARNING:** THE OXYGEN CYLINDER MUST BE COMPLETELY DISCHARGED PRIOR TO PERFORMING ANY DISASSEMBLY.

**NOTE:** See Testing and Fault Isolation, to establish the condition of the unit or most probably cause of its malfunction. This is to determine the extent of disassembly required without completely tearing down and rebuilding the unit.

**NOTE:** The instructions in paragraphs 1 and 2 list the steps necessary to disassemble each of the Portable Cylinder Assemblies into major components. Instructions for disassembly of the components are listed in paragraphs 3 through 5.

1. 9700 Series. (See IPL figure 1.)

**CAUTION:** TO PREVENT POSSIBILITY OF THREAD GALLING, THE REGULATOR BODY SHOULD NOT BE REMOVED FROM THE CYLINDER UNLESS THE CYLINDER IS DUE FOR HYDROSTATIC RETESTING OR CYLINDER CONTAMINATION IS SUSPECTED.

- A. Do not attempt to remove regulator (39 or 39A) from cylinder (45) until all external components have been removed from the regulator.
- B. Identification plate (38) and decal (43) are attached by an adhesive. Removal of these plates is not ordinarily required.
- C. Remove clamp (28) and harness (26).
- D. Unscrew and remove outlet assemblies (29).

2. 9800 Series. (See IPL figure 1.)

- A. Remove clamp (28) and harness (26).
- B. Do not attempt to remove regulator (39 or 39A) from cylinder (45) until all external components have been removed from the regulator.
- C. Remove clamp (25) to remove bracket (24).
- D. Unscrew nut of connector assembly (18). Unscrew connector assembly (18) from regulator (20).
- E. Unscrew elbow assembly (19) and outlet assembly(s) (29) or plug (35) from regulator (39), then remove screws (22) to remove regulator (20).
- F. Identification plate (38) and decal (43) are attached by an adhesive. Removal of these plates is not ordinarily required.

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3. 801242 Demand Regulator Assembly. (See IPL figure 2.)

- A. Remove screws (4), and pull cover (9) off case (22). Removal of plates (5 or 7) is not normally required. If removal is necessary, drill out rivets (6 or 8).
- B. Remove cord (11) and take diaphragm assembly (10) off case (22).
- C. Unthread screws (13) and remove deflector (12).
- D. Remove screws (15) and washers (16 and 17). Pull valve assembly (14) out of case (22). Remove gasket (18).
- E. Remove screen (21) from the inlet port of case (22).
- F. Unscrew adapter (19 or 20) from the outlet port of case (22).

4. Outlet Assemblies

- A. Part No. 5041. (See IPL figure 3.) Unthread screw (6). Remove screen (7), and pick cord (8) out of body (12). Remove screen (9), if necessary. Unscrew nut (3), and remove cover assembly (2). Slide cap (4) and washer (5) off case (18). Remove screw (11). Unscrew body (12) from case (18). Take spring (13), valve (14), and seat (15) out of case (18). Remove latch springs (16) and pins (17).
- B. Part No. 5009-00. (See IPL figure 4.) Remove cover (2). Remove screw (3), screen (4) and pick cord (5) out of stud (7). Unscrew stud (7) from receptacle (15). Remove valve (9), spring (10), and gasket (8). Thread flow port (11) out of stud (7). Remove gasket (14). Snap ring (12) out of flow port (11), and remove filter (13).
- C. Part No. 5507. (See IPL figure 5.) Remove screw (2) and screen (4). Remove cord (3) and screen (4) from body (12). Unscrew guide assembly (6). Remove washer (7) from guide assembly (6). Remove washers (8 and 9), seat (10), and spring (11) from body (12).
- D. Part No. 5052. (See IPL figure 6.) Remove screw (2). Remove screen (4), and pick cord (3) out of base (7). Take screen (4) and washer (5) out of base (7). Unthread base (7) from body (13). Remove gasket (8). Unthread seat (10). Remove gasket (11). Take retainer (12) and spring (9) out of body (13).



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5. 801160 Series Regulator Assembly. (See IPL figure 7.)

**NOTE:** The regulator should not be removed from the cylinder for disassembly. Disassembly of the regulator body from the cylinder should not be attempted until completion of the disassembly instructions listed below.

- A. Unthread screws (33) and remove plate (32). Remove setscrew (34).
- B. Unscrew and remove case (35 or 35A). Lift guide (36), spring (37), plate (38), ring (39), diaphragm (40), and plate (41) out of body (50 or 53).
- C. Unscrew and remove holder (42). Remove seat (43 or 43A), pin (44), guide (45), and spring (46).
- D. Unscrew and remove outlet assembly (25 through 28). Remove cap (25) from plug (28); then remove disc (26) and gasket (27) only if replacement of either is required. Remove washer (29) from body (50 or 53).
- E. Remove on-off valve by unscrewing it from the regulator body. Use a wrench on the flats of the hexagonal portion of the valve body. Remove filter (18), if necessary.
- F. Peel plate (5) off of handle (6). Remove nut (7) and washer (8). Pull handle (6) off stem assembly (13).
- G. Remove washers (9 and 10).
- H. Unscrew nut (11). Remove packing (12 or 12A) and seat (14).
- J. Using stem assembly (13), back head assembly (15 or 15A) out of bushing (17).
- K. Remove packing (16 or 16A).
- L. Unscrew relief valve (31) from body (50 or 53).
- M. Remove the sealing tape compound on threads of relief valve assembly (31).
- N. Remove filler cap (19). Seat (20) is cemented to the cap. Unscrew and remove charging valve assembly (21) only if replacement is required. Then remove filters (22 and 23).

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- P. Remove gauge (30) by using a thin wrench on the flats of the square boss at the rear of the case.
- R. Removal of regulator body (50 or 53) from the cylinder is not recommended and is not usually required. If removal is essential, carefully unthread the body from the cylinder using a strap wrench on the cylinder and a suitable wrench on the regulator.
- S. Remove tube (47) only if it is damaged. Remove plate (48) by removing screws (49) only if the plate is damaged.

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CLEANING

**WARNING:** DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. SUCH MATERIALS, AS WELL AS DUST, LINT, AND FINE METAL FILINGS ARE ALL POTENTIAL COMBUSTIBLES WHICH MIGHT, WHEN EXPOSED TO OXYGEN UNDER PRESSURE, IGNITE AND RESULT IN AN EXPLOSION.

**NOTE:** Using the material listed in Table 401, perform the cleaning procedures outlined in the following paragraphs. Equivalent materials may be used.

MATERIAL	DESCRIPTION	MANUFACTURER*	REFER TO CLEANING PARAGRAPH
Di-Sanite	Di-Sanite	V44389	1.E
Phosphoric - Isopropyl Mixture	Phosphoric Acid Isopropyl Alcohol (50% of each by Vol)	V70829 NOTE: Purchased separately	1.C
1,1,1 Trichloroethane	MIL-T-81533 FED SPEC. O-T-620	V71984	1.D, 1.H(1), (2), (3) 2.B
*Refer to Illustrated Parts List, paragraph 1.E for Vendor's Code			

List of Cleaning Materials  
Table 401

1. After inspecting cylinder in accordance with Check, perform the following cleaning procedure:

**NOTE:** This procedure will remove any organic impurities which are soluble in 1,1,1 Trichloroethane.

- A. Wire brush the cylinder neck threads to remove sealing compounds or rust.
- B. Shake out cylinder to remove any loose foreign matter.
- C. Apply a solution (50% by volume of phosphoric acid isopropyl alcohol) by brush to the area wire brushed, exercising care to prevent excessive application from running into the cylinder.

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**WARNING:** USE 1,1,1 TRICHLOROETHANE IN A WELL VENTILATED AREA ONLY. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN AND INHALATION OF TOXIC VAPORS.

- D. Utilizing a cleaning setup as illustrated in figure 401, place the cylinder, with neck down, in vertical position over the perforated tube (the diameter and length of the tube will be determined by the particular size of the cylinder being cleaned). Pump 1,1,1 Trichloroethane, slightly below its boiling point, through the tube thoroughly spraying the interior of the cylinder being cleaned for a period of three minutes. Remove cylinder from tube and allow complete drainage of 1,1,1 Trichloroethane into drain.
- E. After completion of step D, and using a cleaning setup similar to the setup illustrated in figure 401, pump a solution of Di-Sanite (8 ounces per each gallon of water), at a temperature of 180°F, through the tube, thoroughly spraying the interior of the cylinder being cleaned for a period of three to five minutes. Accomplishment of step E will neutralize any acid constituents and destroy odor.
- F. After completion of step E, and using a cleaning setup similar to the setup illustrated in figure 401, pump water (at city pressure) at 160°F, through the tube, thoroughly spraying the interior of the cylinder being cleaned for a period of two minutes to remove any traces of alkaline residue.
- G. After completion of step F, and using a cleaning setup similar to the setup illustrated in figure 401, dry the interior of the cylinder with forced air heated to a temperature of 212°F, for a period of three to five minutes.
- H. After completion of step G, and after the cylinder has cooled to room temperature, reinspect the cylinder in accordance with Check.

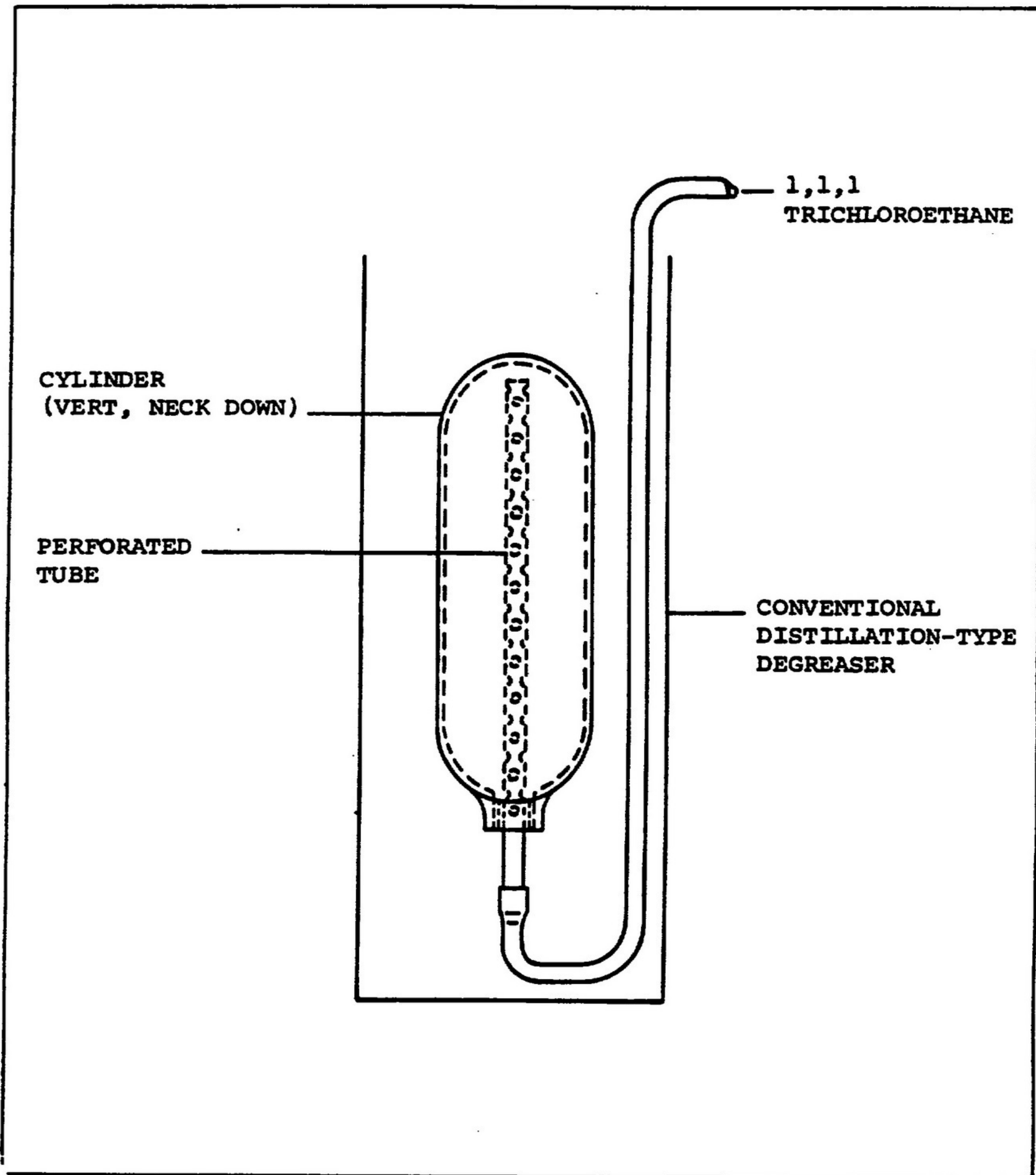
**NOTE:** The cleaning process used should be checked initially and periodically as follows:

- (1) Pour 50cc of anhydrous, chemically pure, 1,1,1 Trichloroethane into the processed cylinder. Cap and shake well for one to two minutes.
- (2) Remove cap and pour flushings into a clean Erlenmeyer flask. Distill the 1,1,1 Trichloroethane in a water bath. After the 1,1,1 Trichloroethane has been distilled, examine residue in flask. If oil marks are visible, check cleaning solutions, implements and pressure.



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**Cleaning Setup  
Figure 401**

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- (3) After completion of steps (a) and (b), and using a cleaning setup similar to the setup illustrated in figure 401, clear all traces of 1,1,1 Trichloroethane from the interior of the cylinder by blowing with dry, clean, oil-free air.
2. After inspecting the valve assembly in accordance with Check, perform the following cleaning procedure.

**WARNING:** DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. SUCH MATERIALS, AS WELL AS DUST, LINT, AND FINE METAL FILINGS ARE ALL POTENTIAL COMBUSTIBLES WHICH MIGHT, WHEN EXPOSED TO OXYGEN UNDER PRESSURE, IGNITE AND RESULT IN AN EXPLOSION.

- A. Remove dirt and foreign particles from equipment by wiping with a clean lint-free cloth, or by blowing with clean oil-free air or nitrogen.

**WARNING:** USE 1,1,1 TRICHLOROETHANE IN A WELL VENTILATED AREA ONLY. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN AND INHALATION OF TOXIC VAPORS.

- B. Metal parts which come in contact with oxygen and have become contaminated with grease can be cleaned by using a vapor degreasing method with 1,1,1 Trichloroethane. Blow clean and dry with a stream of clean dry, oil-free air.
- C. Non-metallic parts such as silicone and rubber components may be cleaned by using an ultrasonic detergent and water cleaning system. Rinse parts in clean water and dry thoroughly before reassembly.

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CHECK

1. Inspect exterior of cylinder for indications of abuse, dents and bulges.
2. Inspect neck of cylinders for cracks and distortion or damaged threads.
3. Inspect all cylinders for peeling external paint and obscure markings.
4. Inspect all high pressure cylinders for last date of hydrostatic test and type. If hydrostatic testing is required, tests shall be in accordance with prescribed procedures by facilities holding a current, valid DOT Approval.

NOTE: DOT Type 3HT cylinders require hydrostatic retesting every 3 years. DOT type 3A and 3AA cylinders require hydrostatic retesting every 5 years. Under certain usage conditions, DOT type 3A and 3AA cylinders may be retested at 10 year intervals. Refer to the current tariff of the "HAZARDOUS MATERIAL REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION" (49 CFR 170) paragraph 173.34 (e) (15) for eligibility requirements.

NOTE: For Cylinder Inspection and Hydrostatic Retest, the use of Compressed Gas Association (CGA) pamphlets C-1, C-5, C-6, C-8 are recommended. These are available from:

CGA, INC.  
1235 Jefferson Davis Highway  
Arlington, VA 22202

5. Inspect the interior for defects which might render the cylinder unsafe.
6. Inspect the interior of cylinders for rust spots, improper parkerizing, or surface blemishes.
7. Inspect valves and/or regulator for cracks, nicks, dents, or burrs which might cause malfunction.
8. Inspect valve seats for scoring.
9. Inspect all threads of valves and/or regulators for damage.
10. Inspect overall condition of all components.

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REPAIR

1. Using the material listed in Table 601, perform the repair procedures outlined in the following paragraphs.

NOTE: Equivalent materials may be used.

MATERIAL	DESCRIPTION	MANUFACTURER*	REFER TO REPAIR PARAGRAPH
Chromic Acid	Chromic Acid	V72658	5.E
Phosphoric Acid	Phosphoric Acid	V70829	5.C 5.E
Zinc Phosphate Coating	Zn PO <sub>4</sub>	V44389	5.C

\*Refer to Illustrated Parts List, paragraph 1.E for Vendor's Code

List of Consumable Materials for Repair  
Table 601

2. Repair of parts, other than removing burrs, is not recommended. If a part is in need of repair, discard it and replace the part.
3. Replace all gaskets, washers, packings, diaphragms, nonmetallic valve seats and filter screens at each overhaul.
4. Replace cylinders that show signs of abuse, dents, bulges, cracks, distortion, damaged threads, and/or defects which might render the cylinder unsafe (refer to Check, steps 3, 4, 5 and 7).

NOTE: DOT 3HT Type cylinders shall be discarded at the end of twenty-four years from original test date or 4,380 pressurizations, whichever occurs first.

5. Cylinders that require interior protective treatment may be reparkerized as follows: (Refer to Check, step 8.)
  - A. Sandblast cylinders internally and externally using fine grit shot.
  - B. Rinse cylinder in clean water.

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- C. Apply a phosphate coating to the interior of the cylinder either by dipping or spraying. For dip-coating, a three minute minimum dip is recommended; for spray-coating, one minute minimum is recommended.

NOTE: The balanced aqueous solution of phosphoric acid, phosphates, and accelerating agents produces a uniform water insoluble crystalline coating varying from gray to black in color.

- D. Rinse cylinder in clean water.

- E. Rinse cylinder in hot chromic acid (140 to 210°F).

NOTE: The pH of the chromic acid rinse will be maintained between 2 and 4 by the addition of flake chromic acid of a mixture of chromic and phosphoric acids.

- F. Dry the cylinder by using warm air or a drying oven.

NOTE: For maximum corrosion resistance, coating weights of 400 mg/sq. ft. are usually adequate. This coating weight may be reduced to 200 mg/sq. ft. if an activator (titanium salts) is used. The coating weight may be deceptive if loosely adherent deposits are obtained, since loosely adherent deposits give inferior performance. Finely crystallizing zinc phosphate coatings provide the best corrosion resistance.

- G. If the exterior finish is removed, it must be recoated with 1000 mg/sq. ft. min. phosphate, and primed per MIL-P-8585A, color Y.

6. Remark and/or repaint cylinders in accordance with information outlined in figures 2 and 3.

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### ASSEMBLY

**NOTE:** Table 701 lists the consumable materials necessary for assembly. Equivalent materials may be used except for oxygen lubricant.

MATERIAL	DESCRIPTION	MANUFACTURER*	REFER TO ASSEMBLY PARAGRAPH
Permacel Thread Sealant Tape	Permacel No. 412	V99742	2.A, 2.B, 2.C, 2.E, 2.F, 4.B, 4.C
Insa-Lute Adhesive	Insa-Lute Adhesive No. 1	V80703	2.D
Loctite Sealant	Loctite, Grade C	V05972	2.M
Oxygen Lubricant	Krytox 240AC	V18873	2.G, 2.H, 2.J, 2.L, 2.N
Oxygen	MIL-O-27210, Type I	V07098	3.C
*Refer to Illustrated Parts List, paragraph 1.E for Vendor's Code.			

List of Consumable Materials for Assembly  
Table 701

#### 1. Outlet Assemblies

- A. Part No. 5052. (See IPL figure 6.) Place retainer (12) and spring (9) in body (13). Place gasket (11) on seat (10), and thread base (7) onto the body. Install gasket (8) on body (13). Install washer (5) and screen (4) in base (7). Pack cord (3) into the opening of base (7). Install screen (4) and screw (2).
- B. Part No. 5507. (See IPL figure 5.) Place spring (11), seat (10) and washers (8 and 9) in body (12). Place washer (7) in guide assembly (6), and screw guide assembly (6) into body (12). Place screen (4) into body (12) and cord (3) into the body. Install screen (4) and screw (2).





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- C. Part No. 5009-00. (See IPL figure 4.) Place filter (13) on flow port (11), and hold in place by installing ring (12). Install gasket (14) in stud (7), and thread flow port (11) into stud (7). Install gasket (8), valve (9), and spring (10) into receptacle (15). Thread stud (7) into receptacle (15). Pack cord (5) into stud (7). Thread screw (3) into stud (7) after installing screen (4). Slide cap (2) in place on receptacle (15).
- D. Part No. 5041. (See IPL figure 3.) Position pins (17) on case (18), and hook springs (16) over the grooved ends of the pins. Install seat (15), valve (14), and spring (13) in case (18). Screw body (12) into case (18). Thread setscrew (11) into case (18). Slide washer (5) and cap (4) into case (18). Assemble nut (3) and cover assembly (2), then thread nut (3) onto case (18). Place screen (9) into the opening of body (12). Pack cord (8) into the opening and install screen (7) and screw (6).
2. 801160 Series Regulator Assemblies. (See IPL figure 7.)

NOTE: Body (50 or 53) must be assembled to a cylinder before assembly of the regulator.

- A. If body (50 or 53) was removed from a cylinder, make sure tube (47) is pressed into the body, then secure the cylinder in a strap wrench. Wrap 1-1/2 turns of thread sealing tape to body (50 or 53) in the direction of the thread spiral, beginning with the first thread. In no case shall the tape extend beyond the first thread. Trim off excess tape. Tighten body (50 or 53) into cylinder using a suitable wrench. Torque body per Table 801.
- B. Wrap 1-1/2 turns of thread sealing tape to gauge (30) in the direction of the thread spiral, beginning with the first thread. In no case shall the tape extend beyond the first thread. Trim off excess tape. Thread gauge (30) into body (50 or 53). Use a thin wrench on the gauge pipe connection square. Torque per Table 801.
- C. Wrap 1-1/2 turns of thread sealing tape to valve assembly (21) body in the direction of the thread spiral, beginning with the first thread. In no case shall the tape extend beyond the first thread. Trim off excess tape. Assemble valve assembly (21) to body (50 or 53) after installing filters (22) and (23). Torque per Table 801.

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- D. If necessary, cement seat (20) to cap (19) using Insa-lute adhesive. Coat rough side of seat (20) and inside of cap (19) with adhesive, then join and allow parts to air dry. Thread cap (19) with seat (20) onto valve assembly (21) after adhesive has thoroughly dried.
- E. Wrap 1-1/2 turns of thread sealing tape to valve assembly (31) in the direction of the thread spiral, beginning with the first thread. In no case shall the tape extend beyond the first thread. Trim off excess tape. Install the valve assembly in body (50 or 53). Do not tighten valve at this time. It is necessary to remove relief valve when testing regulator assembly. When valve assembly is finally installed, torque per Table 801.
- F. Wrap 1-1/2 turns of thread sealing tape to appropriate outlet assembly in the direction of the thread spiral, beginning with the first thread. In no case shall the tape extend beyond the first thread. Trim off excess tape. Install the appropriate outlet assembly at this time. Torque per Table 801.
- G. Position filter (18) in opening of body (50 or 53). Apply a wipe coat of oxygen lubricant to packing (16 or 16A), then install bushing (17) until it bottoms on body (50 or 53). Observe that the filter is not wrinkled or twisted.
- H. Apply a wipe coat of oxygen lubricant to stem of stem assembly (13).
- J. Apply a wipe coat of oxygen lubricant to threaded area of head assembly (15 or 15A) and install head assembly (15 or 15A) in bushing (17), using stem assembly (13) to thread head assembly (15 or 15A) into bushing (17).
- K. Install seat (14) on stem assembly (13) and push seat (14) into bushing (17).
- L. Apply a wipe coat of oxygen lubricant to packing (12 or 12A), then assemble packing (12 or 12A) on nut (11) and thread nut (11) into bushing (17).
- M. Place washers (9 and 10) on stem assembly (13). Assemble handle (6) to stem assembly (13) with washer (8) and nut (7), after applying Loctite to the exposed threads of the stem assembly. Press plate (5) on handle (6).

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- N. Position gasket (27) and disc (26) in cap (25) and apply a wipe coat of oxygen lubricant to exposed surface of gasket (27). Insert washer (29) in body (50 or 53) and torque cap (25) to plug (28) per Table 801. Torque outlet assembly (25 through 28) to body (50 or 53) per Table 801.
- P. Place spring (46) and guide (45) in body (50 or 53).
- R. Inspect the center hole of seat (43 or 43A) and the seating area of pin (44) with a magnifying glass or microscope. These areas must be smooth and clean without cracks, nicks, or burrs. Insert pin (44) in seat (43 or 43A) and place the assembly into body (50 or 53).
- S. Inspect the thread of holder (42) with a magnifying glass or microscope. Make sure that the first thread does not have a sharp leading edge and that the entire thread is free of burrs and rough edges. Torque holder (42) into body (50 or 53) per Table 801. Over-torquing may result in damage to seat (43).
- T. Place plate (41), diaphragm (40), three rings (39), plate (38), spring (37) and guide (36) in position in body (50 or 53).

NOTE: Three rings (39) are normally required to properly seal diaphragm (40) while engaging a maximum number of threads of case (35 or 35A). The number of rings (39) may be altered if necessary to accomplish this.

- U. Thread case (35 or 35A) onto body (50 or 53). Tighten case (35) until it bottoms on body (50 or 53). Install setscrew (34) loosely.

NOTE: Do not install plate (32) and screws (33) until completion of Testing.

### 3. Part No. 801242 Demand Regulator Assembly. (See IPL figure 2.)

- A. Thread adapter (19 or 20) onto the outlet port of case (22).
- B. Install screen (21) in the inlet port of case (22).
- C. Install gasket (18) and attach valve assembly (14) to case (22), using washers (16 and 17) and screws (15). Connect a supply of oxygen to the inlet port, and adjust oxygen pressure to 85 psi. Cover sealing area of valve assembly (14) with a small amount of clean water. Bubbles indicate leakage which must be corrected. After successful completion of this test, remove the oxygen source, dry the regulator by blowing with clean, dry, water-pumped air, and continue reassembly.

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- D. Attach deflector (12) to case (22) with screws (13). Clearance must be noted between the demand valve stem and the deflector. Lack of clearance will cause the demand valve to open.
- E. Install diaphragm assembly (10) over case (22) so that diaphragm edge extends to edge of machined surface beyond groove. Wrap cord (11) around diaphragm at groove in case four full turns and tie securely. The diaphragm must lay smoothly without wrinkles or folds. Apply clear lacquer over knot tied in cord (11).
- F. Rivet plates (5 and 7) to cover (9) with rivets (6 and 8), then assemble cover assembly to case (22) with screws (4).

### 4. 9800 Series (See IPL figure 1.)

**NOTE:** All components of the 9800 Series must be completely tested prior to assembly. Instructions for the testing of components are listed in Testing.

- A. With regulator (39 or 39A) assembled to cylinder (45), place loop of harness (26) over the regulator onto neck of cylinder (45).
- B. Wrap 1-1/2 turns of thread sealing tape to elbow assembly (19) in the direction of the thread spiral, beginning with the first thread. In no case shall the tape extend beyond the first thread. Trim off excess tape. Thread the elbow assembly into regulator (39 or 39A).
- C. Wrap 1-1/2 turns of thread sealing tape to connector assembly (18) in the direction of the thread spiral, beginning with the first thread. In no case shall the tape extend beyond the first thread. Trim off excess tape. Thread the connector assembly into regulator (20).
- D. Assemble bracket (24) to regulator (20) with screws (22), then align this unit on the cylinder and unite elbow assembly (19) to connector assembly (18).
- E. Connect bracket (24) to cylinder by installing clamp (25), then secure loose end of harness (26) to the cylinder with clamp (28).
- F. If necessary, attach identification plate (38) to regulator. Affix decal (43) to cylinder if necessary.

**NOTE:** Outlet assemblies (29) are normally assembled to regulator (39 or 39A) when regulator is reassembled.





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5. 9700 Series (See IPL figure 1.)

NOTE: All components of the 9700 Series must be completely tested prior to final assembly. See Testing for testing instructions.

- A. With regulator (39 or 39A) assembled to cylinder (44), place loop of harness (26) over regulator (39 or 39A) onto neck of cylinder (44). Secure loose end of harness (26) to cylinder with clamp (28).
- B. If necessary, attach identification plate (38) to regulator. Affix decal (43) to cylinder if necessary.

NOTE: Outlet assemblies (29) are normally assembled to regulator (39 or 39A) when regulator is reassembled.

6. Storage Instructions





- A. Make sure on-off valve assembly is closed prior to placing the assembly in storage.
- B. Plug all openings with suitable dust caps and wrap the unit in a clean plastic bag to prevent dust accumulation. Do not use preservative coatings of any type.
- C. Make sure that cylinder pressure is always a minimum of 200 psi.



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FITS AND CLEARANCES

1. Table 801 presents the torque values necessary to assemble the unit.

UNIT	TORQUE (Newton meters)
Outlet Assemblies (28, IPL figure 1)	*40 to 80 Inch Pounds (4,5 - 9,0)
Charging Valve Assembly (21, IPL figure 7)	*60 to 250 Inch Pounds (6,8 - 28,3)
Cap (25, IPL figure 7)	260 Inch Pounds (29,4)
Safety Outlet Assembly (25 through 28, IPL figure 7)	150 Inch Pounds (16,9)
Gauge (30, IPL figure 7)	 40 Inch Pounds (4,5)
Relief Valve (31, IPL figure 7)	25 to 50 Inch Pounds (2,8 - 5,6)
Seat Holder (42, IPL figure 7)	50 Inch Pounds (5,6)  100 Inch Pounds (11,3)
Regulator Body (50 or 53, IPL figure 7)	100 Foot Pounds (136)
*Torque to minimum values. If leakage occurs, retorque to a higher value but do not exceed the maximum.	
 Determined by orientation.	
 100 Inch Pounds for 801160-01 & 801160-02	
50 Inch Pounds for 801160-03 & 801160-04	

Assembly Torque Values  
Table 801



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**SPECIAL TOOLS, FIXTURES AND EQUIPMENT**

1. There are no special tools required to overhaul the portable cylinder assemblies.

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

### ILLUSTRATED PARTS LIST

1. This illustrated Parts List lists and describes the parts of the 9700 series and 9800 series, Portable Cylinder Assemblies.
  - A. The Illustrated Parts List consists of seven parts listings and seven completely indexed drawings. The cylinder assemblies are followed immediately by their component parts, properly indented thereunder, to show their relationship to the units.
  - B. The quantities listed in the "UNITS PER ASSY" column are, in the case of assemblies, the total quantity used per cylinder assembly at the location indicated, while the component parts indented under the assemblies are the quantity used per assembly. The quantities specified, therefore, are not necessarily the total used per cylinder assembly. See the Numerical Index for the total quantity used per cylinder assembly. It should be noted that the index quantity only reflects the use of one or two outlet assemblies. If less than one outlet is present, quantities must be adjusted accordingly.
  - C. The part numbers listed in the "PART NUMBER" column are Scott Aviation part numbers except standard parts, which are listed by "MS" and "AN" part numbers, and vendor items which are listed by vendor part numbers.
  - D. When the quantity of a part is to be selected as required, the abbreviation AR will appear in the "UNITS PER ASSY" column.
  - E. A six place code following the description of a part indicates the manufacturer of that part. Standard parts and parts carried under Scott part numbers have no six place vendor code. The following list contains the codes, and names and addresses of manufacturers supplying items or articles for the breathing unit. This listing includes the vendor codes presented in Tables 101, 401, 601 and 701.

### VENDOR'S CODE

CODE	NAME AND ADDRESS
V05972	American Sealants Co. Hartford, Connecticut
V07098	Linde Division of Union Carbide Tonawanda, New York
V18034	Nupro Willoughby, Ohio

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VENDOR'S CODE

CODE	NAME AND ADDRESS
V21343	Owens-Corning Fiberglass Corp. Huntington, Pennsylvania
V44389	Oakite Products, Inc. Berkley Heights, New Jersey
V49315	Puritan Equipment, Inc. Lenexa, Kansas
V18873	E.I. DuPont De Nemours & Co., Inc. Petroleum Chemicals Division Wilmington, Delaware
V70829	J.T. Baker Chemical Co. N. Phillipsburg, New Jersey
V71984	Hooker Chemical Corp. Niagara Falls, New York
V72658	Allied Chemical Corp. Industrial Chemicals Division Morristown, New Jersey
V80703	Sauereisen Cements Co. Pittsburgh, Pennsylvania
V99742	Johnson and Johnson Inc. Permacel Division New Brunswick, New Jersey

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F. The following effect codes have been assigned to the items contained in IPL figure 1.

PART NO.	EFFECT CODE
9700 SERIES & 9800 SERIES	Select applicable codes from listings in figure 1001.
Select effect code from figure 1001	1
Used on 9800 Series	2
Used on 9800 Series with 6084-2 cylinders	3
Used on 9700 and 9800 Series with 6084-1 and 6084-2 cylinders.	4
Used on 9700 Series	5
Used on 9800 Series when no constant flow outlets required.	6
Used on 9700 and 9800 Series with 6084-20 cylinders	7
Used on 9700 and 9800 Series when two constant flow outlets required.	8
Used on 9700 Series with 6084-1 cylinders.	9
Used on 9700 Series with 6084-2 cylinders	10

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**2. How to use this Illustrated Parts List**

- (1) If neither the part number nor the nomenclature is known, the part can be found by comparison with the exploded view illustration. When located on the illustration, the item number will refer to the line in the Parts List with the part number and the nomenclature.
- (2) If the part number is known, refer to the Numerical Index and find the part number. Opposite the part number is the figure and item number which refers to the Parts List. Proper nomenclature is opposite the item number on the Parts List page.

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

9800-1 A

1 A-B 20 A

BASIC SERIES NO.

RESPIRATOR		CYLINDER AND REGULATOR ASSEMBLY				CYLINDER FINISH		HARNESS ASSEMBLIES		FLOW SETTING		ALTITUDE		OUTLET ASSEMBLY	
PART NO. CODE NO.	REGULATOR PART NO.	PART NO. CODE LETTER	CYLINDER EFFECT CODE	CYLINDER PART NO.	REGULATOR ASSEMBLY PART NUMBER AL ALV EFFECT CODE	BRASS EFFECT CODE	CODE 1	HARNESS PART NO. LETTER	EFFECT CODE	PART NO. CODE LETTER	FLOW (SLPM)	PART NO. CODE LETTER	ALT FEET	PART NO. CODE LETTER	EFFECT CODE
1	801242-01	8A	B	8084-20	801180-01	801180-03	R	A	E	B	20	0	0	8008-00	Q
2	801242-02	8B	B	8084-20	801180-02	801180-04	S			E	30	20	20,000	1041-00	H
										F	40	20	23,000	8022-00	N
										K	60	23		5501-00	J
														10003884	M
														36728-01	P
														8018-01	E

Effective April 1, 1982, the configurations shown in this column are no longer available  
These configurations to be used when 2 centimeter flow outlets are required

Effect Code  
Figure 1001

9700-A

1 A-B 20 B

BASIC SERIES NO.

# CYLINDER AND REGULATOR ASSEMBLY

## CYLINDER FINISH

## HARNESS ASSEMBLIES

## FLOW SETTINGS

## ALTITUDE

## OUTLET ASSEMBLY

PART NO. CODE LETTER	CYLINDER PART NO. LETTER	CYLINDER EFFECT CODE	REGULATOR ASSY PART NUMBER		EFFECT CODE	CYLINDER FINISH CODE 1	PART NO. CODE LETTER	HARNESS PART NO. LETTER	EFFECT CODE	PART NO. CODE LETTER	FLOW (SLPM)	ALT FEET	PART NO. CODE LETTER	OUTLET PART NO.	EFFECT CODE
			AL ALV	BRASS											
A	8084-1	A	801180-00	C	801180-03	R	A	801880-00	E	B	20	0	A	8008-00	Q
C	8084-20	B	801180-01	D	801180-03	R	B	801894-00	F	P	40	20	B	8041-00	H
D	8084-1	A	801180-02	L	801180-04	S				Y	FULL	23	C	8022-00	N
F	8084-20	B	801180-02	L	801180-04	S							D	8501-00	J
													K	8018-00	T
													N	36728-01	P

Effective April 1, 1982, the configurations shown in this column are no longer available

These configurations to be used when 2 centimeter flow outlets are required

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PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	TTL REQ
A1120B		2	18	1
A1126		2	12	1
A1215-1		2	11	1
AN345C10		7	7	1
AN515-4-3		2	4	3
AN515-4-4		2	15	2
AN936A4		2	16	2
AN960C10L		7	8	1
EC9-5U		3	8	AR
		4	5	
		5	3	
		6	3	
MS20470A2-2		2	6	4
10001296		1	24	1
10001493		4	11	1
10001494		4	7	1
10002408		7	48	1
10002538		1	-37	1
10002539		1	38	1
10002542		1	-42	1
10002543		1	43	1
10003202		1	-36	1
10003209		7	-51	1
10003319		7	-52	1
10003566		1	-34A	1
13160		1	25	2
		1	28	
13374-00		2	10	1
18037-01		7	16	1
18341		7	49	2
210331		5	6	1
22427-1		7	5	1
22445-1		7	9	1
23274-05		7	6	1
23393-1		7	17	1
23394-01		7	11	1
24823		4	9	1
24825		4	15	1
26565		7	25	1
26567		7	28	1
2661-03		7	30	1
27170-01		7	53	1
27170-02		7	-54	1

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<b>PART NUMBER</b>	<b>AIRLINE PART NUMBER</b>	<b>FIGURE</b>	<b>ITEM</b>	<b>TTL REQ</b>
29550		3	12	1
29551		3	13	1
29552		3	14	1
29553-1		3	15	1
29554		3	18	1
29555		3	16	2
29556		3	17	2
29557		3	3	1
29558-1		3	2	1
29567		3	11	1
36728-01		1	-34C	1
		1	-34D	
37008-01		7	34	1
5002		7	45	1
5003		7	37	1
5005-01		7	35	1
5005-03		7	35A	1
5009-00		1	29	2
		1	-30	
		4	-1	
5009-01		4	-6	1
5013		4	4	2
		6	4	
5013-1		3	7	2
		3	9	
		5	4	
5014		4	3	1
		6	2	
5014-1		3	6	1
		5	2	
5016		7	19	1
5018		7	47	1
5023		7	20	1
5027		7	46	1
5028		7	44	1
5029		7	43	1
5030-1		7	42	1
5031		7	41	1
5032-1		7	40	1
5033		7	39	3
5034		7	38	1

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PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	TTL REQ
5041-00		1	-31	2
		1	-32	
		3	-1	
5041-1		3	-10	1
5042-1		3	4	1
5042-2		3	5	1
5043-14		7	31	1
5052-00		1	-34B	1
		6	-1	
5052-2		6	-6	1
5053-07		7	50	1
5056		7	32	1
5058		6	5	1
5065-2		4	12	1
5065-3		4	14	1
5065-4		4	13	1
5065-6		4	10	1
5065-8		4	8	1
5067-1		6	7	1
5067-2		6	8	1
5067-3		6	13	1
5067-4		6	9	1
5067-5		6	12	1
5067-6		6	11	1
5067-7		6	10	1
5093-01		7	21	1
520058		5	10	1
5507-00		1	-33	2
		1	-34	
		5	-1	
5511		7	10	2
5513		7	13	1
5517		7	14	1
5518		7	15	1
5520-15		7	-4	1
5520-16		7	-4A	1
5522		7	18	1
5533		5	-5	1
5533-1		5	12	1
55620-01		7	12A	1
55620-02		7	16A	1
5601		1	19	1
5602		1	18	1

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PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	TTL REQ
5603		2	19	1
5606		2	20	1
5607-3		2	22	1
59447-00		4	2	1
59553-00		7	33	2
59598-00		7	12	1
59602-00		1	22	4
6050-1		2	9	1
6050D		2	-3	1
6055E		2	14	1
6066		2	17	2
6084-1		1	-44	1
6084-20		1	45	1
614010		5	9	1
6370		7	29	1
6375-05		2	5	1
6378		2	7	1
6555		7	27	1
6812		2	21	1
6818-00		1	-35A	1
6818-1		1	-35	1
7171-00		7	26	1
801160-00		1	39	1
		7	-1	
801180-01		1	-40	1
		7	-2	
801160-02		1	-41	1
		7	-3	
801160-03		1	39A	1
		1	-40A	
		7	-2A	
801160-04		1	-41A	1
		7	-3A	
801242-01		1	20	1
		2	-1	
801242-02		1	-21	1
		2	-2	
801421-00		7	-24	1
801658-00		1	-27	1
801660-00		1	26	1
802883-01		7	15A	1
803129-01		7	43A	1
832100		5	7	1
832402		5	8	1

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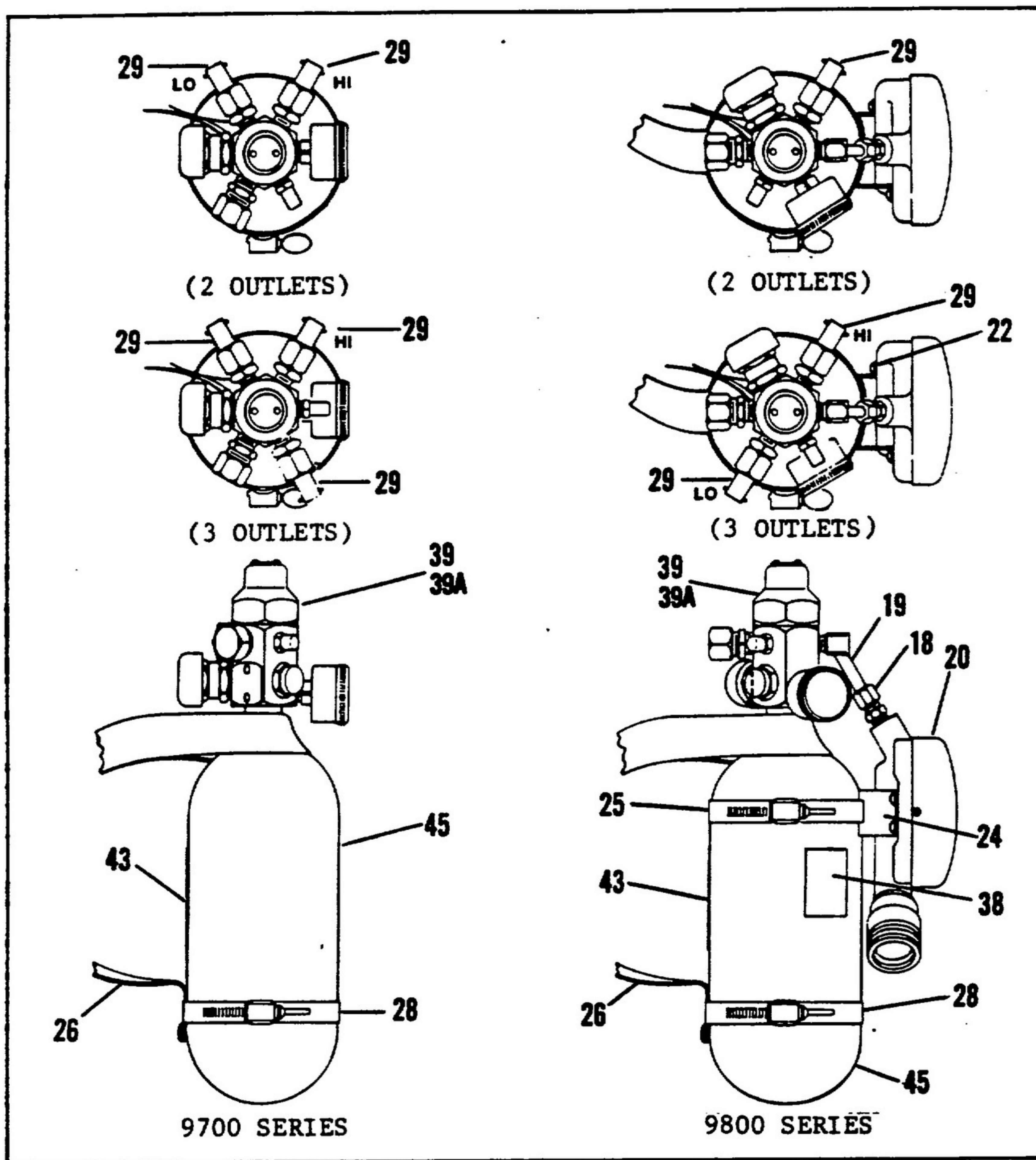
<b>PART NUMBER</b>	<b>AIRLINE PART NUMBER</b>	<b>FIGURE</b>	<b>ITEM</b>	<b>TTL REQ</b>
833012		5	11	1
8384		7	23	1
8385		7	22	2
8561		7	36	1
9036		2	13	2
9700 SERIES		1	-1	RF
9700-A1A-BF23A		1	-6	RF
9700-C1A-BF20B		1	-3	RF
9700-C1A-BF20D		1	-8	RF
9700-C1A-BF23A		1	-5	RF
9700-C1A-BF23B		1	-7	RF
9700-C1A-BF23C		1	-8B	RF
9700-C1A-BF23D		1	-8A	RF
9700-C1A-F23BN		1	-8C	RF
9700-C1B-BF23D		1	-4	RF
9700-F1A-BF23BN		1	-8D	RF
9800 SERIES		1	-2	RF
9800-1C1A-E20A		1	-9	RF
9800-1C1A-E20B		1	-13	RF
9800-1C1A-F20A		1	-9A	RF
9800-1C1A-F20B		1	-15	RF
9800-2C1A-E20A		1	-14	RF
9800-2C1A-E20B		1	-12	RF
9800-2C1A-E20C		1	-12A	RF
9800-2C1A-E20D		1	-10	RF
9800-2C1A-E23A		1	-11	RF
9800-2C1A-F23A		1	-15A	RF
9800-2C1A-XOM		1	-16A	RF
9800-2C1A-XOX		1	-16	RF
9800-2D1A-BF23A		1	-17	RF
9800-2D1A-E23AM		1	-17A	RF
9800-2D1A-F23AM		1	-17B	RF

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL



9700/9800 Series Portable Cylinder Assemblies  
Figure 1

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UNITS PER ASSY
1-1	9700 SERIES		PORTABLE CYLINDER ASSY		
-2	9800 SERIES		PORTABLE CYLINDER ASSY		
-3	9700-C1A- BF20B		PORTABLE CYLINDER ASSY	1	RF
-4	9700-C1B- BF23D		PORTABLE CYLINDER ASSY	1	RF
-5	9700-C1A- BF23A		PORTABLE CYLINDER ASSY	1	RF
-6	9700-A1A- BF23A		PORTABLE CYLINDER ASSY	1	RF
-7	9700-C1A- BF23B		PORTABLE CYLINDER ASSY	1	RF
-8	9700-C1A- BF20D		PORTABLE CYLINDER ASSY	1	RF
-8A	9700-C1A- BF23D		PORTABLE CYLINDER ASSY	1	RF
-8B	9700-C1A- BF23C		PORTABLE CYLINDER ASSY	1	RF
-8C	9700-C1A- F23BN		PORTABLE CYLINDER ASSY	1	RF
-8D	9700-F1A- BF23BN		PORTABLE CYLINDER ASSY	1	RF
-9	9800-1C1A- E20A		PORTABLE CYLINDER ASSY	1	RF
-9A	9800-1C1A- F20A		PORTABLE CYLINDER ASSY	1	RF
-10	9800-2C1A- E20D		PORTABLE CYLINDER ASSY	1	RF
-11	9800-2C1A- E23A		PORTABLE CYLINDER ASSY	1	RF
-12	9800-2C1A- E20B		PORTABLE CYLINDER ASSY	1	RF
-12A	9800-2C1A- E20C		PORTABLE CYLINDER ASSY	1	RF
-13	9800-1C1A- E20B		PORTABLE CYLINDER ASSY	1	RF
-14	9800-2C1A- E20A		PORTABLE CYLINDER ASSY	1	RF
-15	9800-1C1A- F20B		PORTABLE CYLINDER ASSY	1	RF
-15A	9800-2C1A- F23A		PORTABLE CYLINDER ASSY	1	RF

- ITEM NOT ILLUSTRATED





9700 & 9800 SERIES  
COMPONENT MAINTENANCE MANUAL WITH IPL

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UNITS PER ASSY
1-16	9800-2C1A-XOX		PORTABLE CYLINDER ASSY	1	RF
-16A	9800-2C1A-XOM		PORTABLE CYLINDER ASSY	1	RF
-17	9800-2D1A-BF23A		PORTABLE CYLINDER ASSY	1	RF
-17A	9800-2D1A-E23AM		PORTABLE CYLINDER ASSY	1	RF
-17B	9800-2D1A-F23AM		PORTABLE CYLINDER ASSY	1	RF
18	5602		. CONNECTOR ASSY	2	1
19	5601		. ELBOW ASSEMBLY	2	1
20	801242-01		. REGULATOR-DEMAND (SEE IPL FIGURE 2 FOR BREAKDOWN)	2,BA	1
-21	801242-02		. REGULATOR-DEMAND (SEE IPL FIGURE 2 FOR BREAKDOWN) ATTACHING PARTS	2,BB	1
22	59602-00		. SCREW	2	4
23	DELETED		-----*-----		
24	10001296		. BRACKET	2	1
25	13160		. CLAMP	2	1
26	801660-00		. HARNESS	4,E	1
-27	801658-00		. HARNESS ATTACHING PARTS	5,F	1
28	13160		. CLAMP	4	1
29	5009-00		. OUTLET ASSY (SEE IPL FIGURE 4 FOR BREAKDOWN)	5,G	2
-30	5009-00		. OUTLET ASSY (SEE IPL FIGURE 4 FOR BREAKDOWN)	2,G	1
-31	5041-00		. OUTLET ASSY (SEE IPL FIGURE 3 FOR BREAKDOWN)	5,H	2
-32	5041-00		. OUTLET ASSY (SEE IPL FIGURE 3 FOR BREAKDOWN)	2,H	1
-33	5507-00		. OUTLET ASSY (SEE IPL FIGURE 5 FOR BREAKDOWN)	5,J	2
-34	5507-00		. OUTLET ASSY (SEE IPL FIGURE 5 FOR BREAKDOWN)	2,J	1
-34A	10003566		. OUTLET ASSEMBLY	2,M	1

- ITEM NOT ILLUSTRATED

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UNITS PER ASSY
1-34B	5052-00		. OUTLET ASSY (SEE IPL FIGURE 6 FOR BREAKDOWN)	4,N	1
-34C	36728-01		. OUTLET ASSEMBLY	2,P	1
-34D	36728-01		. OUTLET ASSEMBLY	5,P	1
-35	6818-1		. PLUG	6,K	1
-35A	6818-00		. PLUG	5,T	1
-36	10003202		. PLATE-IDENTIFICATION	9	1
-37	10002538		. PLATE-IDENTIFICATION	10	1
38	10002539		. PLATE-IDENTIFICATION	3	1
39	801160-00		. REGULATOR ASSY (SEE IPL FIGURE 7 FOR BREAKDOWN) (SUPERSEDED BY ITEM 39A) (SB 35-49)	9,C	1
39A	801160-03		. REGULATOR ASSY (SEE IPL FIGURE 7 FOR BREAKDOWN) (SUPERSEDES ITEM 39) (SB 35-49)	9,C	1
-40	801160-01		. REGULATOR ASSY (SEE IPL FIGURE 7 FOR BREAKDOWN) (SUPERSEDED BY ITEM-40A) (SB 35-49)	7,D	1
-40A	801160-03		. REGULATOR ASSY (SEE IPL FIGURE 7 FOR BREAKDOWN) (SUPERSEDES ITEM-40) (SB 35-49)	7,D	1
-41	801160-02		. REGULATOR ASSY (SEE IPL FIGURE 7 FOR BREAKDOWN) (SUPERSEDED BY ITEM-41A) (SB 35-49)	8,L	1
-41A	801160-04		. REGULATOR ASSY (SEE IPL FIGURE 7 FOR BREAKDOWN) (SUPERSEDES ITEM-41) (SB 35-49)	8,L	1
-42	10002542		. DECAL-INSTRUCTION	5	1
43	10002543		. DECAL-INSTRUCTION	2	1
-44	6084-1		. CYLINDER	A	1
45	6084-20		. CYLINDER	B	1

R

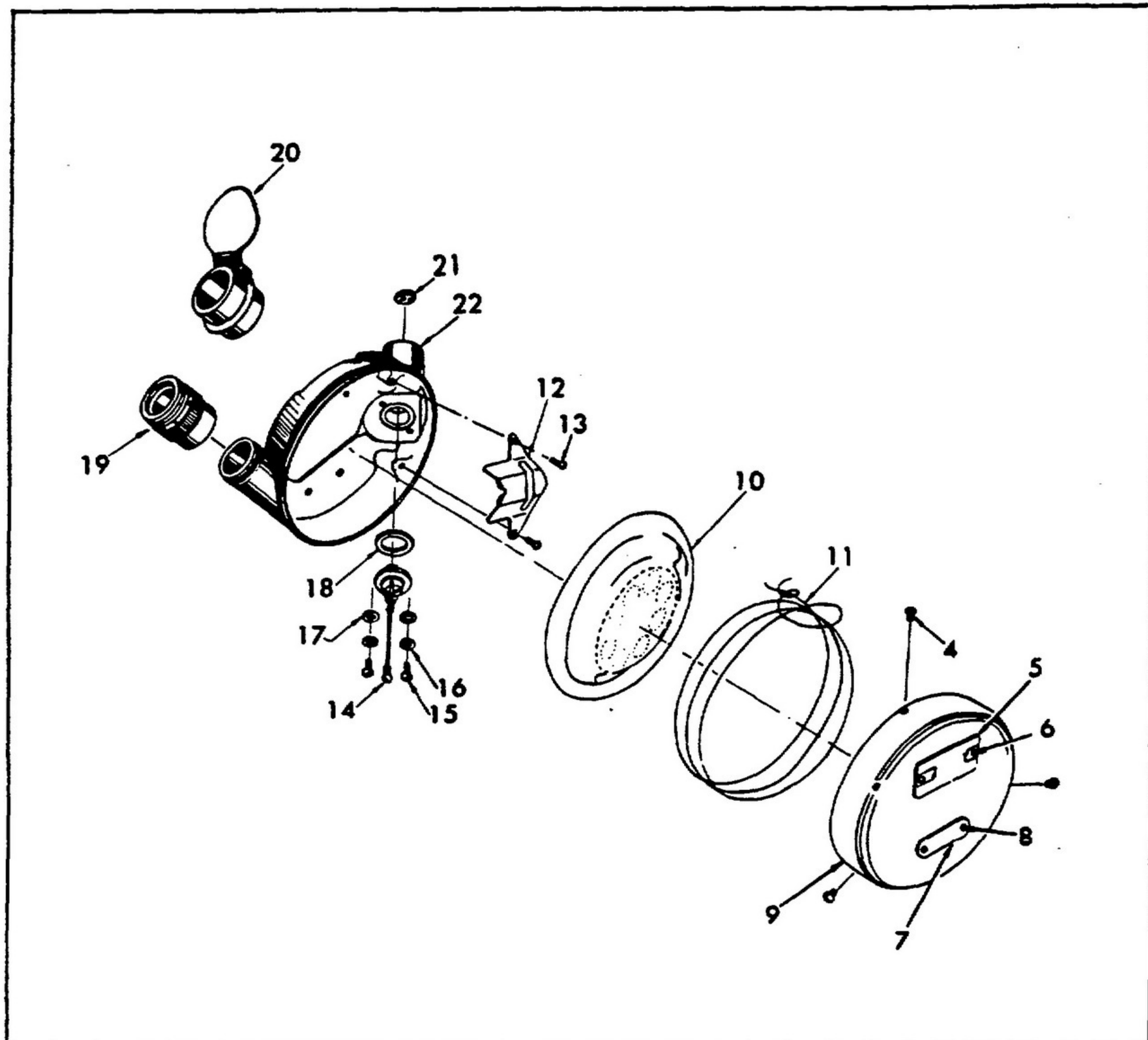
- ITEM NOT ILLUSTRATED

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**9700 & 9800 SERIES  
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**Demand Regulator Assembly, P/N 801242  
Figure 2**

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UNITS PER ASSY
2-1	801242-01		REGULATOR ASSY-DEMAND (SEE ITEM 20, IPL FIG. 1 FOR NHA)	BA	RF
-2	801242-02		REGULATOR ASSY-DEMAND (SEE ITEM 21, IPL FIG.1 FOR NHA)	BB	RF
-3	6050D		. COVER ASSEMBLY ATTACHING PARTS	BA, BB	1
4	AN515-4-3		. SCREW -----★-----	BA, BB	3
5	6375-05		. . PLATE-IDENT ATTACHING PARTS	BA, BB	1
6	MS20470A2-2		. . RIVET -----★-----	BA, BB	2
7	6378		. . PLATE-INSTRUCTION ATTACHING PARTS	BA, BB	1
8	MS20470A2-2		. . RIVET -----★-----	BA, BB	2
9	6050-1		. . COVER-CASE	BA, BB	1
10	13374-00		. DIAPHRAGM ASSY ATTACHING PARTS	BA, BB	1
11	A1215-1		. CORD -----★-----	BA, BB	1
12	A-1126		. DEFLECTOR ATTACHING PARTS	BA, BB	1
13	9036		. SCREW -----★-----	BA, BB	2
14	6055E		. VALVE ASSY-DEMAND ATTACHING PARTS	BA, BB	1
15	AN515-4-4		. SCREW	BA, BB	2
16	AN936A4		. WASHER	BA, BB	2
17	6066		. WASHER -----★-----	BA, BB	2
18	A1120B		. GASKET	BA, BB	1
19	5603		. ADAPTER	BA	1
20	5606		. ADAPTER	BB	1
21	6812		. SCREEN	BA, BB	1
22	5607-3		. CASE-REGULATOR	BA, BB	1

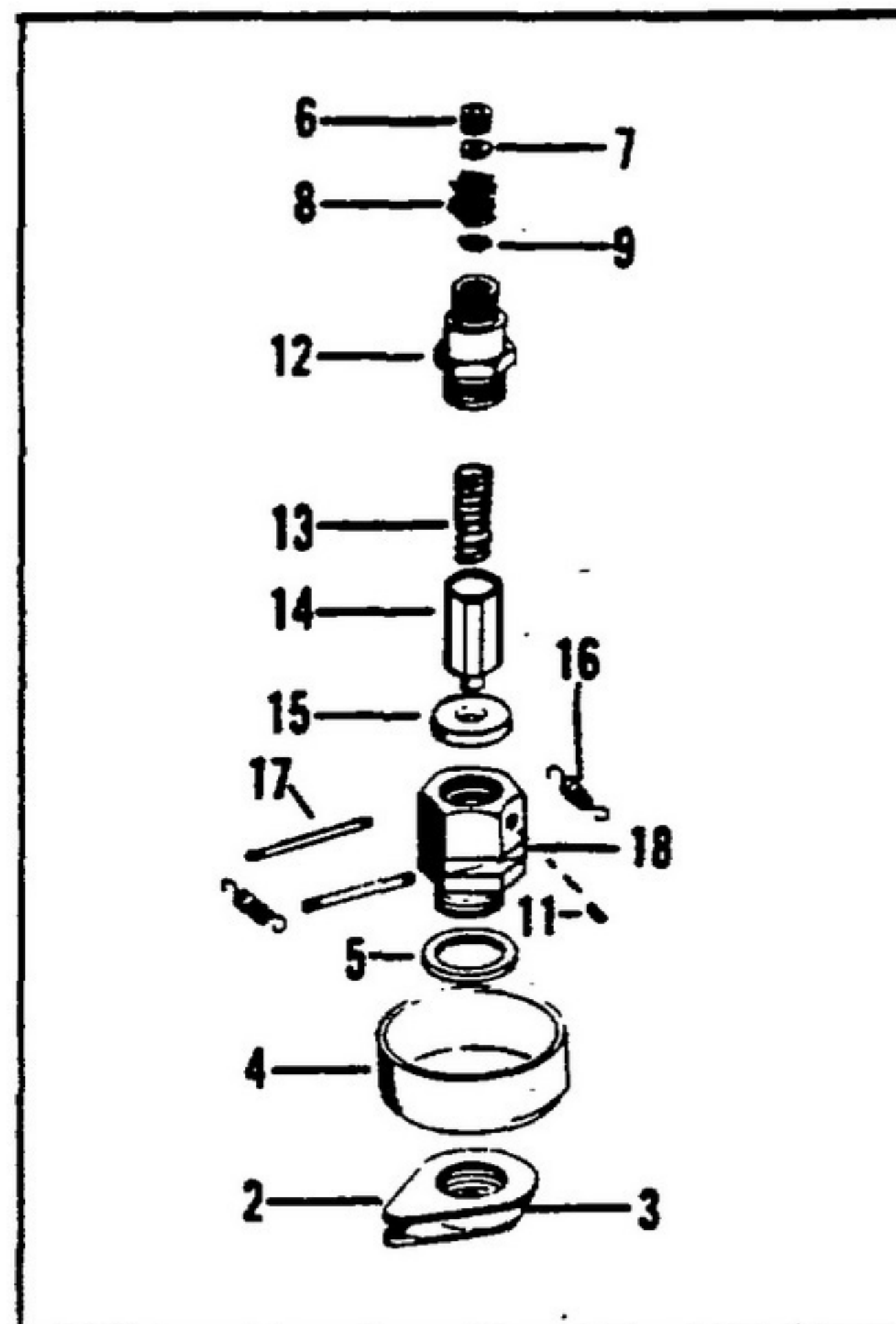
- ITEM NOT ILLUSTRATED

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL



Outlet Assembly P/N 5041  
Figure 3

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UNITS PER ASSY
3-1	5041-00		OUTLET ASSY (SEE ITEM 31, IPL FIG. 1 FOR NHA)	H	RF
2	29558-1		. COVER ASSEMBLY	H	1
3	29557		. NUT -----*	H	1
4	5042-1		. CAP	H	1
5	5042-2		. WASHER	H	1
6	5014-1		. SCREW	H	1
7	5013-1		. SCREEN	H	1
8	EC9-5U		. CORD-GLASS (V21343)	H	AR
9	5013-1		. SCREEN	H	1
-10	5041-1		. COUPLING ASSEMBLY	H	1
11	29567		. . SETSCREW	H	1
12	29550		. . BODY	H	1
13	29551		. . SPRING	H	1
14	29552		. . VALVE	H	1
15	29553-1		. . SEAT-VALVE	H	1
16	29555		. . SPRING	H	2
17	29556		. . PIN	H	2
18	29554		. . CASE	H	1

- ITEM NOT ILLUSTRATED

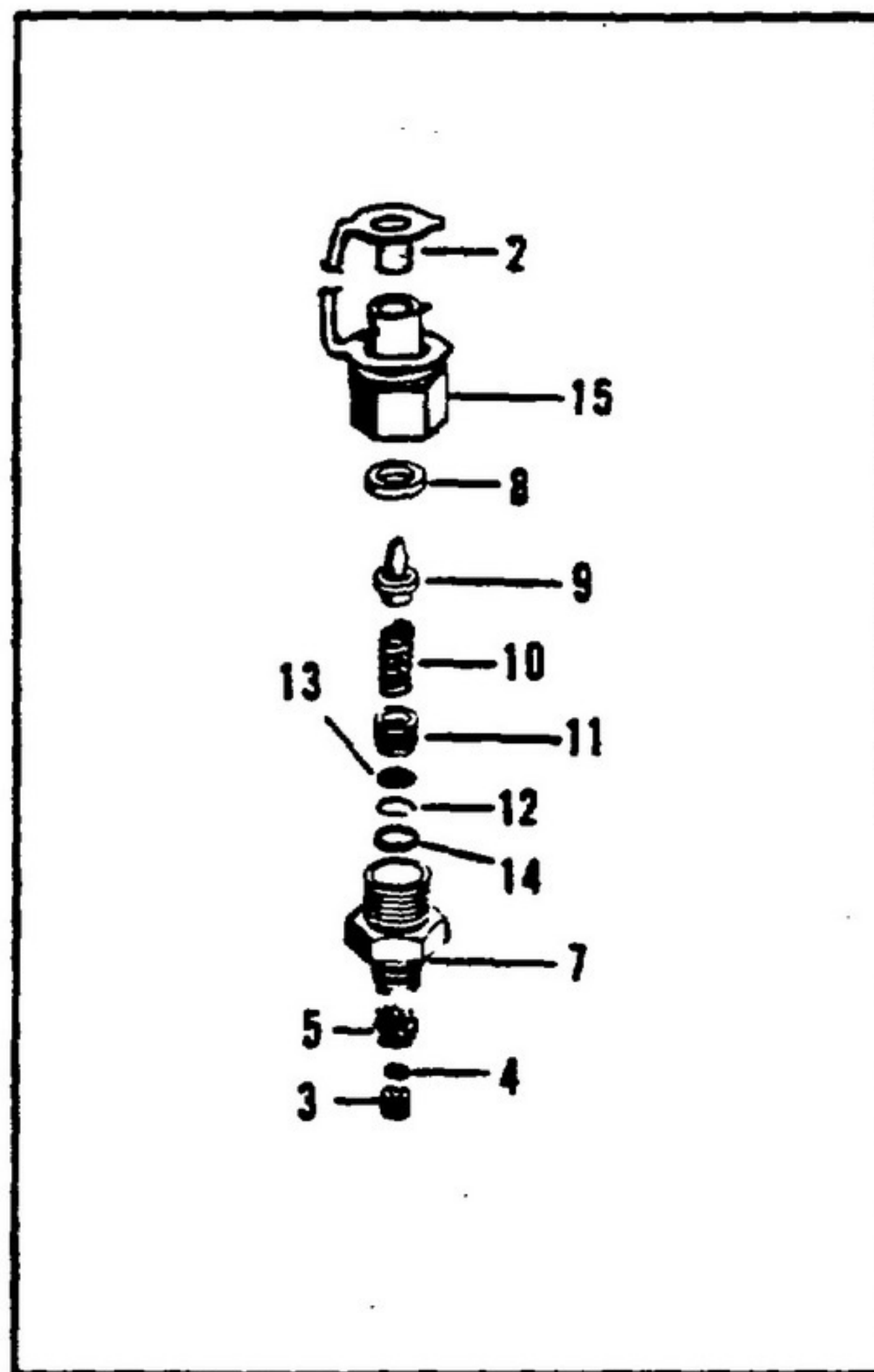
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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL



Outlet Assembly, P/N 5009-00  
Figure 4

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UNITS PER ASSY
4-1	5009-00		OUTLET ASSY (SEE ITEM 29, IPL FIG. 1 FOR NHA)	G	1
2	59447-00		. COVER-DUST	G	1
3	5014		. SCREW	G	1
4	5013		. SCREEN	G	1
5	EC9-5U		. CORD-GLASS (V21343)	G	AR
-6	5009-01		. OUTLET ASSEMBLY	G	1
7	10001494		. . STUD	G	1
8	5065-8		. . GASKET	G	1
9	24823		. . VALVE	G	1
10	5065-6		. . SPRING	G	1
11	10001493		. . PORT-FLOW	G	1
12	5065-2		. . RING	G	1
13	5065-4		. . FILTER	G	1
14	5065-3		. . GASKET	G	1
15	24825		. . RECEPTACLE	G	1

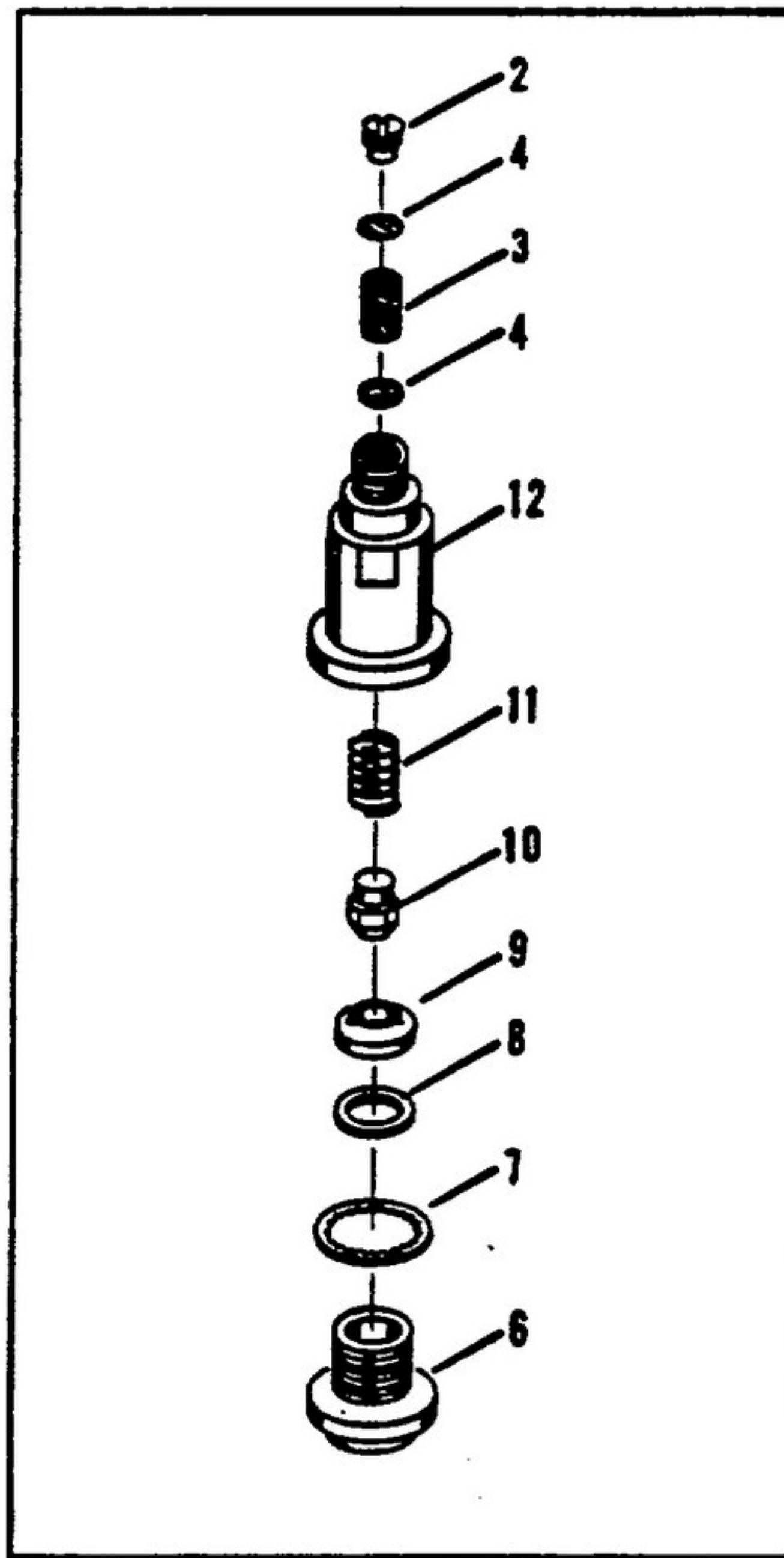
- ITEM NOT ILLUSTRATED

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## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL



Outlet Assembly. P/N 5507  
Figure 5

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UNITS PER ASSY
5-1	5507-00		OUTLET ASSY (SEE ITEM 33, IPL FIG. 1 FOR NHA)	J	RF
2	5014-1		. SCREW	J	1
3	EC9-5U		. CORD-GLASS(V21343)	J	AR
4	5013-1		. SCREEN	J	1
-5	5533		. OUTLET SUBASSY	J	1
6	210331		. . GUIDE ASSY (V49315)	J	1
7	832100		. . WASHER-LOCK (V49315)	J	1
8	832402		. . WASHER-RET (V49315)	J	1
9	614010		. . WASHER-SEAT (V49315)	J	1
10	520058		. . SEAT (V49315)	J	1
11	833012		. . SPRING (V49315)	J	1
12	5533-1		. . BODY (V49315)	J	1

- ITEM NOT ILLUSTRATED

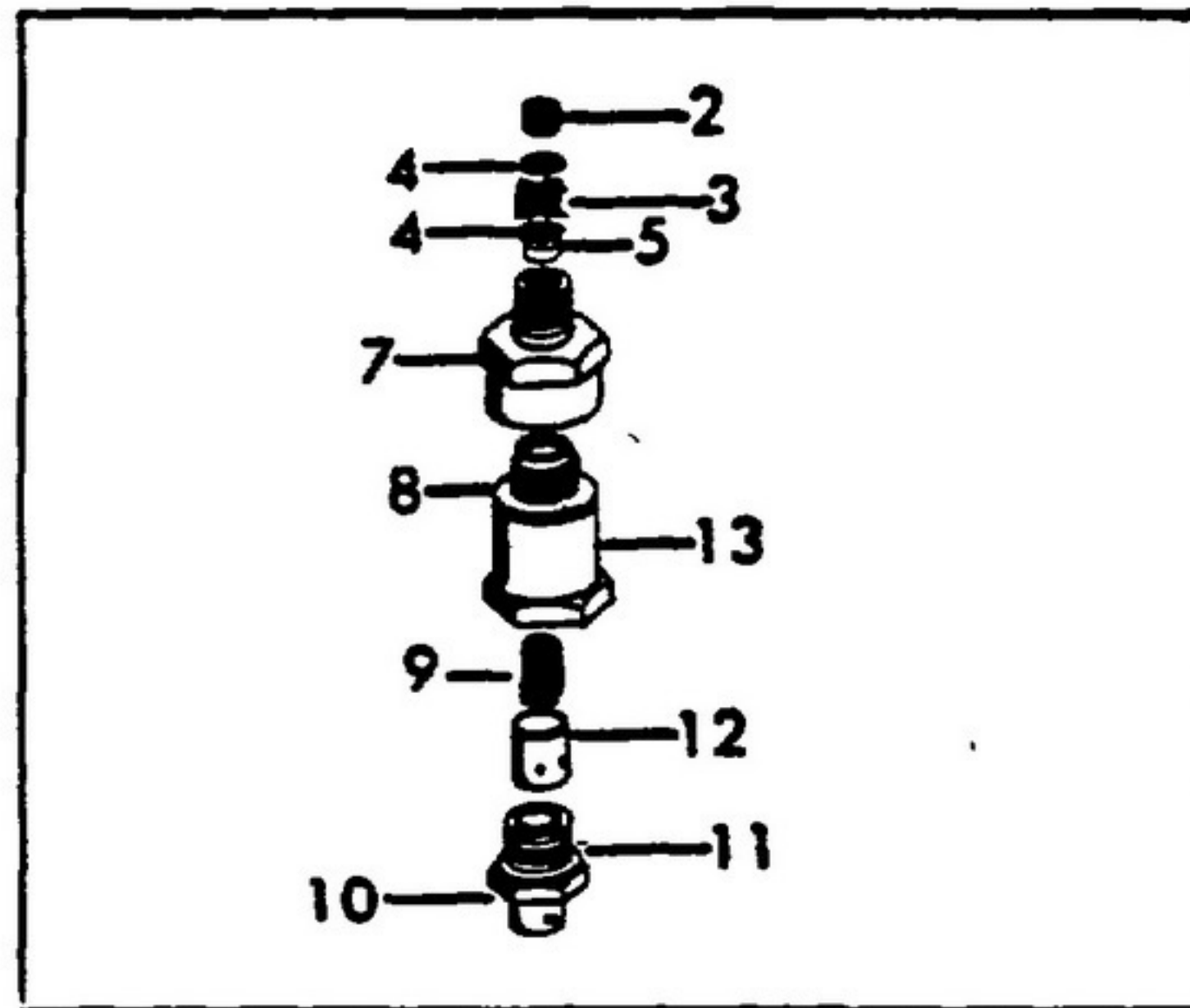
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# 5000

## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL



Outlet Assembly  
P/N 5052  
Figure 6

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE	EFF CODE	UNITS PER ASSY
6-1	5052-00		1234567 OUTLET ASSY (SEE ITEM 34B, IPL FIG. 1 FOR NHA)	N	RF
2	5014		. SCREW-ORIFICE ADJ	N	1
3	EC9-5U		. CORD-GLASS (V21343)	N	AR
4	5013		. SCREEN	N	2
5	5058		. WASHER	N	1
6	5052-2		. COUPLING	N	1
7	5067-1		. . BASE	N	1
8	5067-2		. . GASKET-BODY	N	1
9	5067-4		. . SPRING	N	1
10	5067-7		. . SEAT-VALVE	N	1
11	5067-6		. . GASKET-VALVE SEAT	N	1
12	5067-5		. . RETAINER	N	1
13	5067-3		. . BODY	N	1
This item and its components no longer available. If replacements are required, outlet assembly shall be replaced by a different style outlet assembly.					

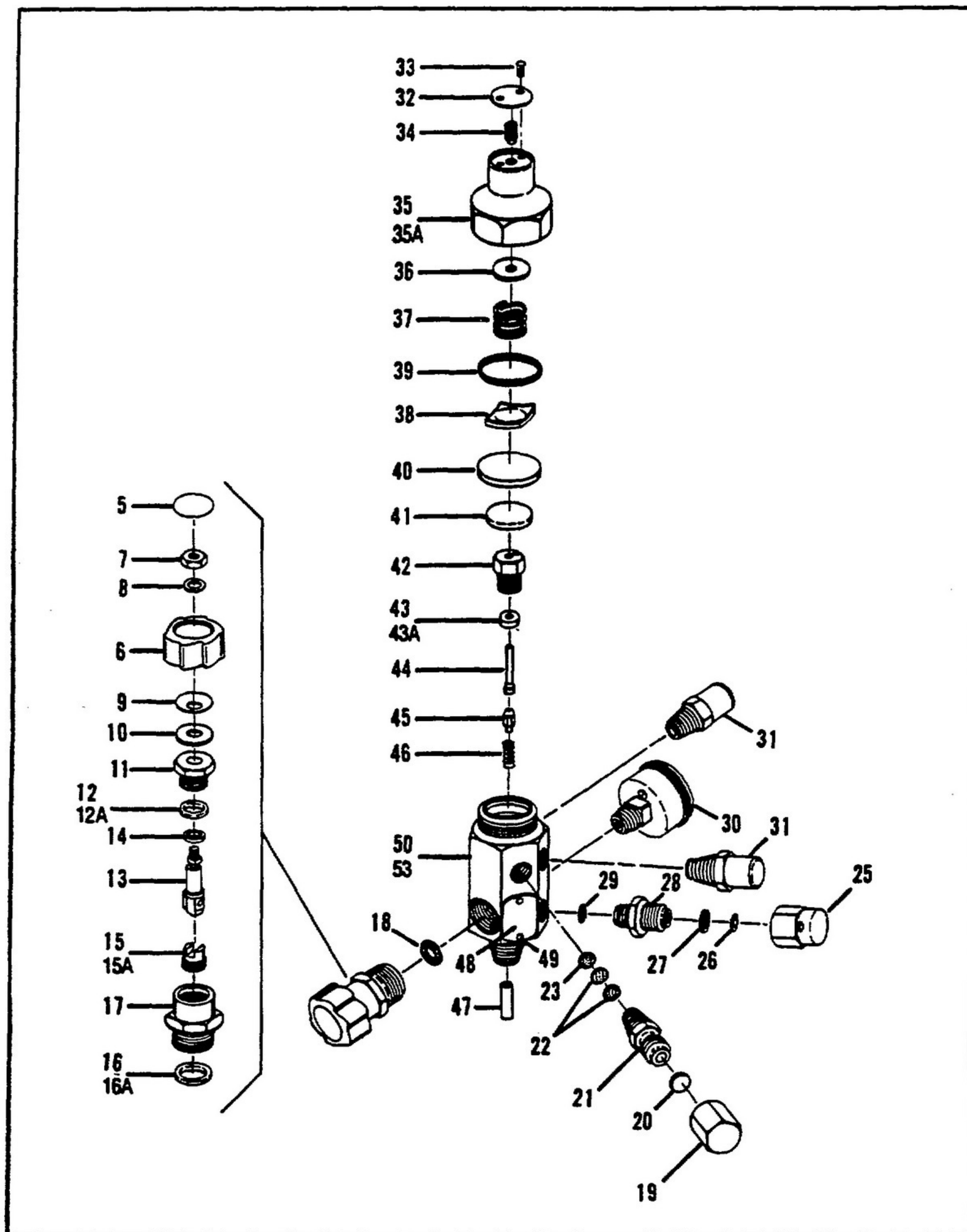
- ITEM NOT ILLUSTRATED

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Regulator Assembly P/N 801160  
Figure 7

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# 500A

## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UNITS PER ASSY
7-1	801160-00		REGULATOR ASSY (SEE ITEM 39, IPL FIGURE 1 FOR NHA) (SUPERSEDED BY ITEM-2A) (SB 35-49)	C	1
-2	801160-01		REGULATOR ASSY (SEE ITEM 40, IPL FIGURE 1 FOR NHA) (SUPERSEDED BY ITEM-2A) (SB35-49)	D	1
-2A	801160-03		REGULATOR ASSY (SEE ITEM 40A, IPL FIGURE 1 FOR NHA) SUPERSEDES ITEMS 1 AND 2) (SB 35-49)	R	1
-3	801160-02		REGULATOR ASSY (SEE ITEM 41, IPL FIGURE 1 FOR NHA) (SUPERSEDED BY ITEM -3A) (SB 35-49)	L	1
-3A	801160-04		REGULATOR ASSY (SEE ITEM -41A, IPL FIGURE 1 FOR NHA) (SUPERSEDES ITEM 3) (SB 35-49)	S	1
-4	5520-15		. VALVE KIT-ON-OFF	CDL	1
-4A	5520-16		. VALVE KIT-ON-OFF	RS	1
5	22427-1		. . PLATE-ID	CDLRS	1
6	23274-05		. . HANDLE	CDLRS	1
7	AN345C10		ATTACHING PARTS		
8	AN960C10L		. . NUT	CDLRS	1
			. . WASHER	CDLRS	1
9	22445-1		-----		
10	5511		. . WASHER-BOWED	CDLRS	1
11	23394-01		. . WASHER-FLAT	CDLRS	2
12	59598-00		. . NUT-PACKING	CDLRS	1
12A	55620-01		. . PACKING-PREFORMED	CDL	1
			. . PACKING-PREFORMED (SB35-49)	RS	1
13	5513		. . STEM ASSEMBLY	CDLRS	1
14	5517		. . SEAT-TEFLON	CDLRS	1
15	5518		. . HEAD ASSEMBLY	CDL	1
15A	802883-01		. . HEAD ASSEMBLY (SB35-49)	RS	1
16	18037-01		. . PACKING-PREFORMED	CDL	1
16A	55620-02		. . PACKING-PREFORMED (SB35-49)	RS	1
17	23393-1		. . BUSHING	CDLRS	1
18	5522		. FILTER	CDLRS	1
19	5016		. CAP-FILLER	CDLRS	1

- ITEM NOT ILLUSTRATED

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# 9000

## 9700 & 9800 SERIES COMPONENT MAINTENANCE MANUAL WITH IPL

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UNITS PER ASSY
7 20	5023		. SEAT-FILLER CAP	CDLRS	1
21	5093-01		. VALVE ASSY-CHARGING	CDLRS	1
22	8385		. FILTER	CDLRS	2
23	8384		. FILTER	CDLRS	1
-24	801421-00		. OUTLET ASSY-SAFETY	CDLRS	1
25	26565		. . CAP	CDLRS	1
26	7171-00		. . DISC-SAFETY	CDLRS	1
27	6555		. . GASKET	CDLRS	1
28	26567		. . PLUG-SAFETY	CDLRS	1
29	6370		. WASHER	CDLRS	1
30	2661-03		. GAUGE	CDLRS	1
31	5043-14		. VALVE ASSY-RELIEF	CDLRS	1
32	5056		. PLATE-IDENTIFICATION ATTACHING PARTS	CDLRS	1
33	59553-00		. SCREW -----*	CDLRS	2
34	37008-01		. SETSCREW	CDLRS	1
35	5005-01		. CASE	CDL	1
35A	5005-03		. CASE (SB35-49)	RS	1
36	8561		. GUIDE	CDLRS	1
37	5003		. SPRING	CDLRS	1
38	5034		. PLATE-DIAPHRAGM	CDLRS	1
39	5033		. RING	CDLRS	3
40	5032-1		. DIAPHRAGM	CDLRS	1
41	5031		. PLATE-THRUST	CDLRS	1
42	5030-1		. HOLDER	CDLRS	1
43	5029		. SEAT	CDL	1
43A	803129-01		. SEAT ASSEMBLY (SB35-49)	RS	1
44	5028		. PIN	CDLRS	1
45	5002		. GUIDE	CDLRS	1
46	5027		. SPRING	CDLRS	1
47	5018		. TUBE	CDLRS	1
48	10002408		. PLATE ATTACHING PARTS	CDLRS	1
49	18341		. SCREW-DRIVE -----*	CDLRS	2
50	5053-07		. BODY	C	1
-51	10003209		. BODY	D	1
-52	10003319		. BODY	L	1
53	27170-01		. BODY (SB35-49)	R	1
-54	27170-02		. BODY (SB35-49)	S	1

- ITEM NOT ILLUSTRATED

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